

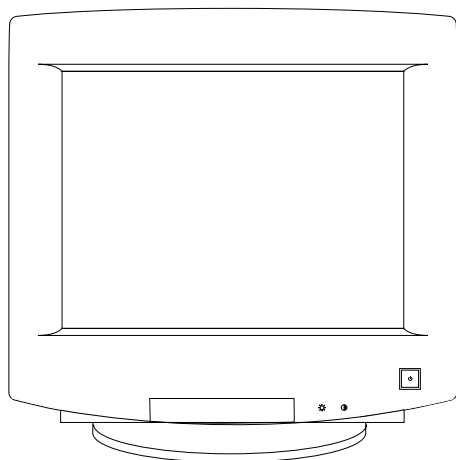


COLOR MONITOR

CF21M*

SERVICE *Manual*

COLOR MONITOR



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1 Precautions

1-1 Safety Precautions

WARNINGS

1. For continued safety, do not attempt to modify the circuit board.
2. Disconnect the AC power before servicing.
3. When the chassis is operating, semiconductor heatsinks are potential shock hazards.

1-1-1 Servicing the High Voltage and CRT :

WARNING: A high voltage VR replaced in the wrong direction may cause excessive X-ray emissions.

1. When servicing the high voltage system, remove the static charge by connecting a 10 kohm resistor in series with an insulated wire (such as a test probe) between the chassis and the anode lead.
2. When troubleshooting a monitor with excessively HV, avoid being unnecessarily close to the monitor. Do not operate the monitor for longer than is necessary to locate the cause of excessive voltage.
3. High voltage should always be kept at the rated value, no higher. Only when high voltage is excessive are X-rays capable of penetrating the shell of the CRT, including the lead in glass material. Operation at high voltages may also cause failure of the CRT or high voltage circuitry.
4. When the HV regulator is operating properly, there is no possibility of an X-ray problem. Make sure the HV does not exceed its specified value and that it is regulating correctly.
5. The CRT is especially designed to prohibit X-ray emissions. To ensure continued X-ray protection, replace the CRT only with one that is the same or equivalent type as the original.
6. Handle the CRT only when wearing shatterproof goggles and after completely discharging the high voltage anode.
7. Do not lift the CRT by the neck.

1-1-2 Fire and Shock Hazard :

Before returning the monitor to the user, perform the following safety checks:

1. Inspect each lead dress to make certain that the leads are not pinched or that hardware is not lodged between the chassis and other metal parts in the monitor.

2. Inspect all protective devices such as nonmetallic control knobs, insulating materials, cabinet backs, adjustment and compartment covers or shields, isolation resistor-capacitor networks, mechanical insulators, etc.
3. Leakage Current Hot Check (Figure 1-1):
WARNING: Do not use an isolation transformer during this test.

Use a leakage current tester or a metering system that complies with American National Standards Institute (ANSI C101.1, *Leakage Current for Appliances*), and Underwriters Laboratories (UL Publication UL1410, 59.7).

4. With the unit completely reassembled, plug the AC line cord directly into a 120V AC outlet. With the unit's AC switch first in the ON position and then OFF, measure the current between a known earth ground (metal water pipe, conduit, etc.) and all exposed metal parts, including: metal cabinets, screwheads and control shafts. The current measured should not exceed 0.5 milliamp. Reverse the power-plug prongs in the AC outlet and repeat the test.

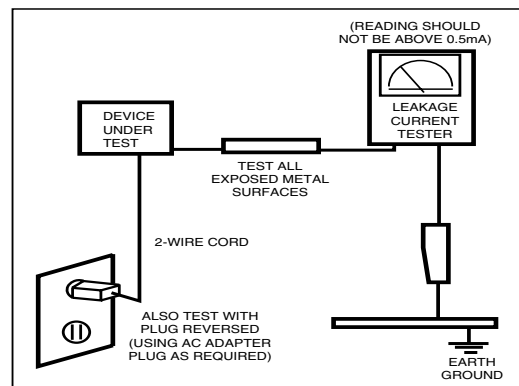


Figure 1-1. Leakage Current Test Circuit

1-1-3 Product Safety Notices

Some electrical and mechanical parts have special safety-related characteristics which are often not evident from visual inspection. The protection they give may not be obtained by replacing them with components rated for higher voltage, wattage, etc. Parts that have special safety characteristics are identified by ⚠ on schematics and parts lists. A substitute replacement that does not have the same safety characteristics as the recommended replacement part might create shock, fire and / or other hazards. Product safety is under review continuously and new instructions are issued whenever appropriate.

Components identified by ☢ on schematics and parts lists must be sealed by a soldering iron after replacement and adjustment.

2 Product Specifications

2-1 Specifications

Item	Description
Picture Tube:	21-Inch (53 cm): 20-inch (50.8 cm) viewable, 21": 0.25 mm Dot pitch. Full-square tube / Perfect Flatmess, 90° Deflection, Anti-Reflection coating with Anti-electrastatic, Medium short persistence phosphor
Scanning Frequency	Horizontal : 30 kHz ~ 115 kHz
Display Colors	Unlimited colors
Maximum Resolution	Horizontal : 1800 Pixels, Vertical : 1440 Pixels
Input Video Signal	Analog, 0.7 Vp-p positive at 75 Ω , internally terminated
Input Sync Signal	Separate Sync : TTL level positive/negative Composite Sync : TTL level positive/negative Sync-on-Green Coptional : Composite sync 0.3 Vp-p negative (Video on Vp-p positive)
Maximum Pixel Clock rate	280 MHz
Active Display	Horizontal : 393 mm, Vertical : 294.5 mm
Input Voltage	AC 90 ~ 264 Volts, 60 / 50 Hz \pm 3 Hz
Power Consumption (nominal)	130 Watt
Dimensions (W x D x H) Unit / Carton	19.8 x 19.4 x 20.2 Inches (504 x 492 x 508 mm) / 25.0 x 24.6 x 25.3 Inches (634 x 625 x 642 mm)
Weight (Net/Gross)	26.1 kg (57.6 lbs) / 30.5 kg (67.3 lbs)
Environmental Considerations	Operating Temperature : 32°F ~ 104°F (0°C ~ 40°C) Humidity : 10 % ~ 80 % Storage Temperature : -4°F ~ 113°F (-20°C ~ 45°C) Humidity : 5 % ~ 95 %
<ul style="list-style-type: none">• CF21M* complies with TCO 99 recommendations for reduced electromagnetic fields.• Designs and specifications are subject to change without prior notice.	

3 Disassembly and Reassembly

This section of the service manual describes the disassembly and reassembly procedures for the CF21M* monitor.

WARNING: This monitor contains electrostatically sensitive devices. Use with caution when handling these components.

3-1 Disassembly

Cautions: 1. Disconnect the monitor from the power source before disassembly.
2. To remove the Rear Cover, you must use the special opening jig tool.

3-1-1 Before making Disassembly

1. Disconnect signal cable and power cord from the monitor.
2. With a pad beneath it, stand the monitor on its front with the screen facing downward and the base close to you.
3. Make sure nothing will damage the screen.

3-1-2 Cabinet Disassembly

1. To uncover the 2 uppermost screws. Press in the end of each screw cap and pull it away from the cabinet.
2. Remove the 4 screw on the Rear Cover and pull it toward to remove it.

3-1-3 Removing the Stand

Pull the tab outward on the Chassis Bottom and pull the Tilt and Swivel Base up to remove it.

3-1-4 Removing the Top Shield

Remove the 9 screws on the Top Shield Cover and remove the Shield.

3-1-5 Removing the Bottom Shield

1. Remove the 4 screw on the Bottom Shield Cover.
2. Lift off the Bottom Shield.

3-1-6 Removing the Video PCB Assembly

1. Remove the Video PCB from the CRT.
2. Disconnect CN102, CN103, CN104, CN105, CN12 and CN13 on the Video PCB Assembly and Video PCB Ass'y from the CRT Neck.

4 Alignment and Adjustments

This section of the service manual explains how to make permanent adjustments to the monitor.

4-1 Adjustment Conditions

Caution: Changes made without the Softjig are saved only to the user mode settings. As such, the settings are not permanently stored and may be inadvertently deleted by the user.

4-1-1 Before Making Adjustments

4-1-1 (a) ORIENTATION

When servicing, always face the monitor to the east.

4-1-1 (b) WARM-UP TIME

The monitor must be on for 30 minutes before starting alignment. Warm-up time is especially critical in color temperature and white balance adjustments.

4-1-1 (c) SIGNAL

Analog, 0.7 Vp-p positive at 75 ohm, internal termination

Sync: Separate/Composite
(TTL level negative/positive)

Sync-on-Green:

Composite sync 0.3 Vp-p negative
(Video 0.7 Vp-p positive)

4-1-1 (d) SCANNING FREQUENCY

Horizontal: 30 kHz ~ 115 kHz (Automatic)

Vertical: 50 Hz ~ 160 Hz (Automatic)

Unless otherwise specified, adjust at the 1280 x 1024 mode (H: 91 kHz, V: 85 Hz) signals.

Refer to Table 2-1 on pages 2-2 and 2-3.

4-1-1 (e) HIGH VOLTAGE ADJUSTMENT

Signal: 1280 x 1024 mode (91 kHz/85 Hz)

Display image: Full white

Contrast: Maximum

Brightness: Maximum

Limit: 27.5 kV \pm 0.5 kV

Measure the high voltage level at the anode cap.
High voltage should be within the limit as above.

4-1-1 (f) G2 (SCREEN) VOLTAGE

The Screen Voltage is fixed in the firm so don't need to adjust the Screen voltage.

4-1-1 (g) CENTER RASTER

Adjust VR401 so that the back raster comes to the center when you apply a signal of 91 kHz/85 Hz.

4-1-2 Required Equipment

The following equipment may be necessary for adjustment procedures:

4-1-2 (a) DISPLAY CONTROL ADJUSTMENT

1. Non-metallic (–) screwdriver: 1.5 mm
Non-metallic (–) screwdriver: 3 mm
2. Philips (+) screwdriver: 1.5 mm
3. Non-metallic hexkey: 2.5 mm
4. Digital Multimeter (DMM), or
Digital Voltmeter (DVM)
5. Signal generator, or
Computer with a video board that uses the ET-4000 chipset (strongly recommended if using Samsung DM 200 software) and that displays: 1280 x 1024 @ 85 Hz, or 1600 x 1200 @ 85 Hz (maximum).
6. Personal computer

4-1-2 (b) COLOR ADJUSTMENTS

1. All equipment listed in 4-1-2 (a), above
2. Color analyzer, or any luminance measurement equipment

4-1-3 After Making Adjustments

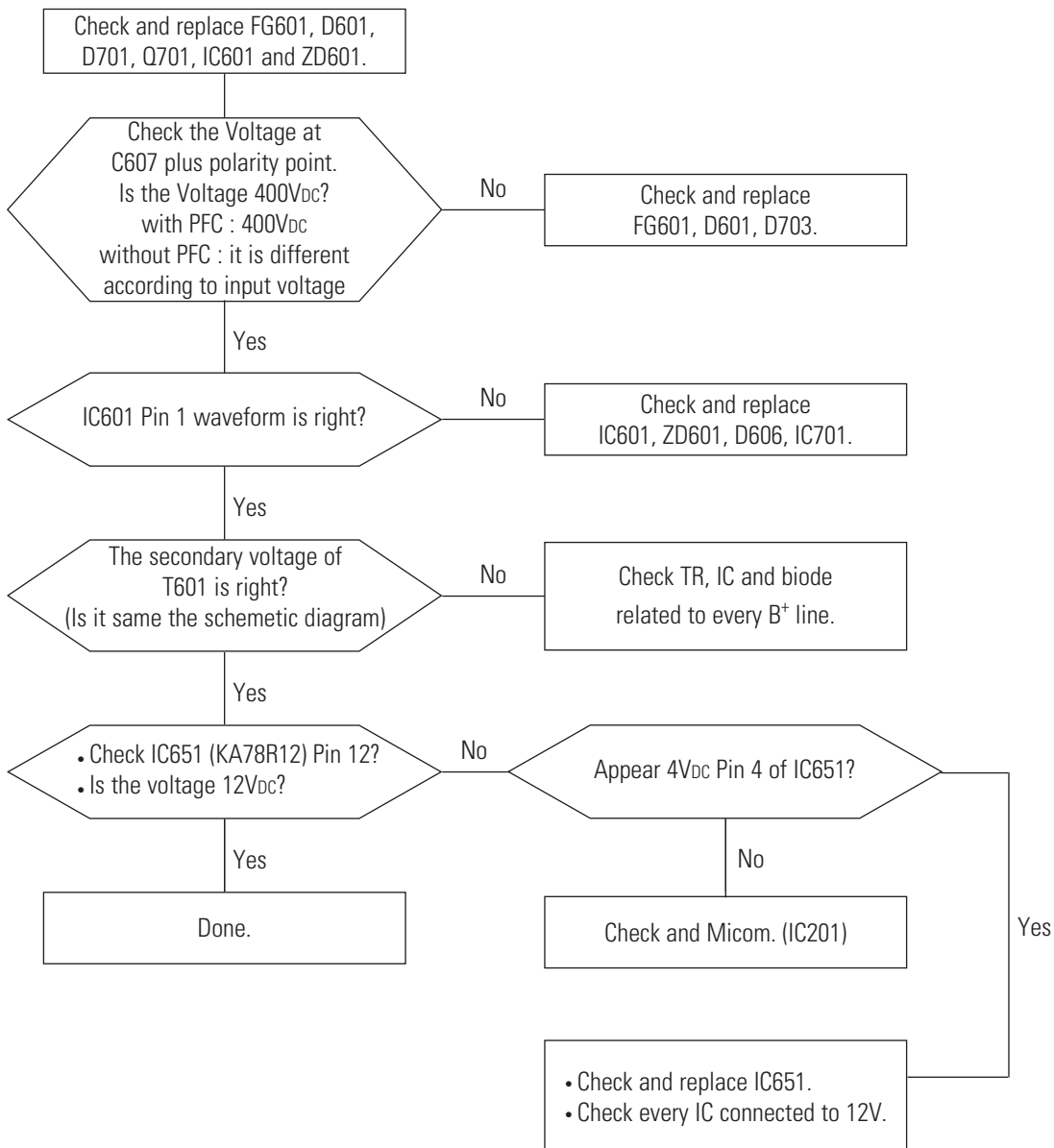
After finishing all adjustments, test the monitor in all directions. If, for example, the monitor does not meet adjustment specifications when facing north, reposition the monitor to face east and readjust. This time, try for an adjustment closer to the ideal setting within the tolerance range. Test the unit again in all directions. If the monitor again fails to meet specifications in every direction, contact your Regional After Service Center for possible CRT replacement.

5 Troubleshooting

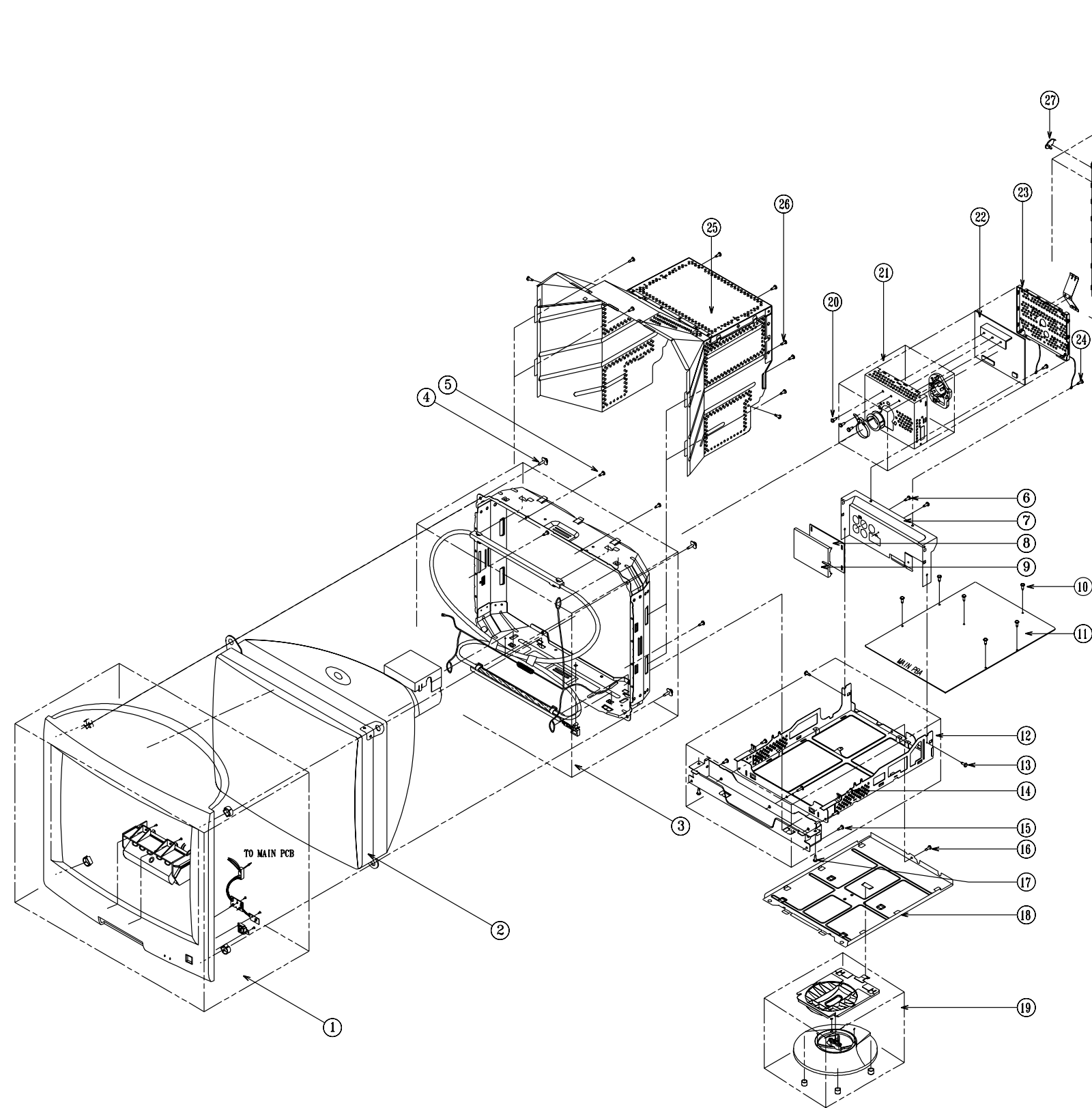
5-1 Parts Level Troubleshooting

- Notes:** 1. If a picture does not appear, Click the Brightness and Contrast button on the front panel, and then increase the value of Brightness and Contrast.
2. Check the following circuits.
- No raster appears: Power circuit, Horizontal output circuit, H/V control circuit, and H/V output circuit.
 - High voltage develops but no raster appears: Video output circuits.
 - High voltage does not develop: Horizontal output circuits.

5-1-1 No Power Supply



6 Exploded View and Parts List



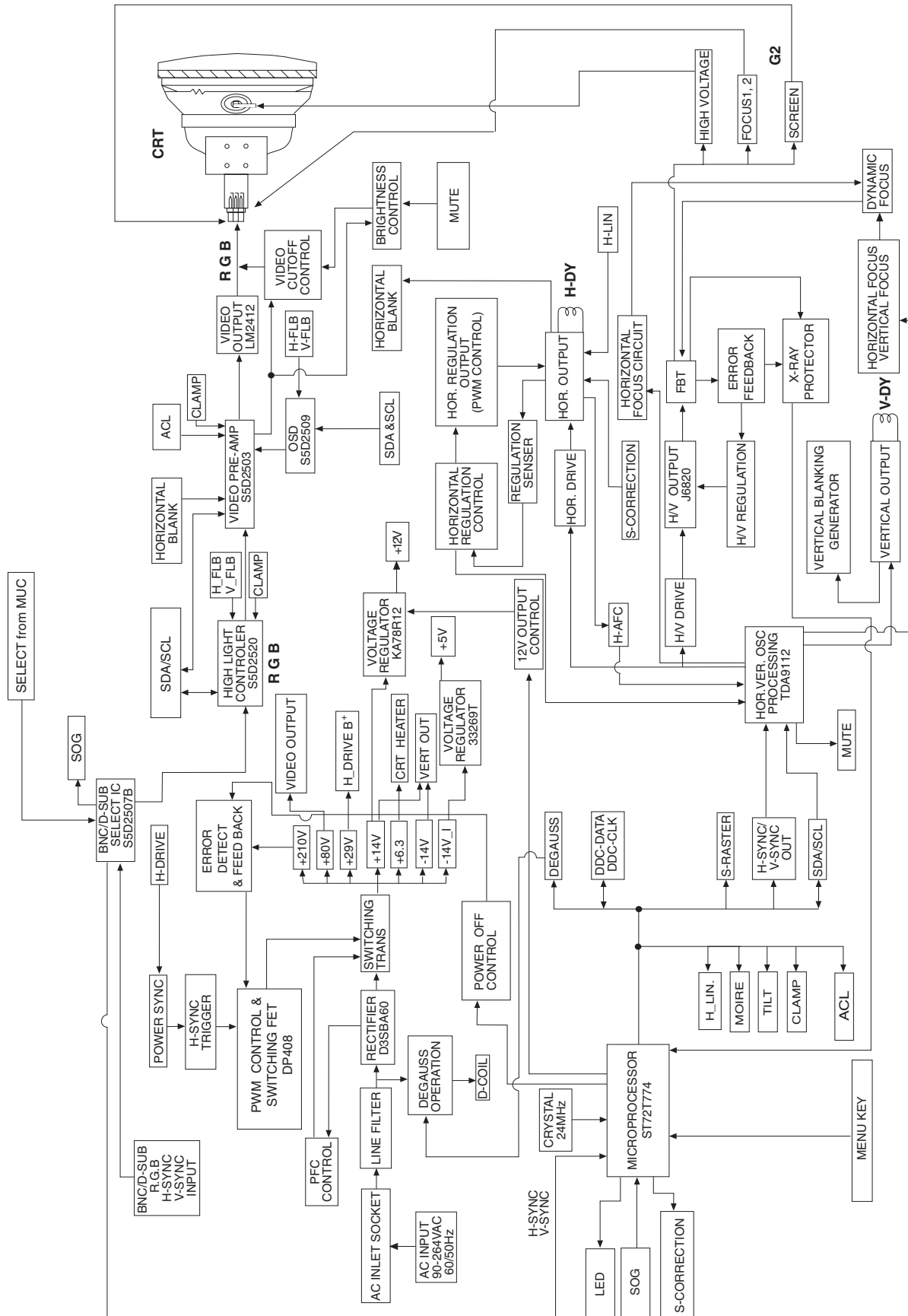
NO	DESCRIPTION	CODE-NO	SPECIFICATION	Q'TY	REMARK	
1	UNIT-COVER/FRONT	BH75-00063A	UNIT	1		SA
2	CDT		21" FST	1		SA
3	UNIT-BRKT/CDT	BH75-00066A	UNIT	1		SA
4	SCREW-ASS'Y	6006-001010	CDT 5 X 25	4	CDT + UNIT-FRONT	SNA
5	SCREW-TAPTITE	6003-000009	BH 4 X 16	6	UNIT-B/CDT + UNIT-FRONT	SNA
6	SCREW-TAPTITE	6003-000010	BH 3 X 10	2	S/BNC-COVER + UNIT-BNC	SNA
7	SHIELD-BNC COVER	BH70-00019A	SECC T0.5	1		SNA
8	BNC-PBA		PG21"	1		-
9	SHIELD-BNC REAR	BH70-00020A	SPTE T0.5	1		SNA
10	SCREW-TAPTITE	6003-000010	BH 3 X 10	6	MAIN-PBA + UNIT-B/MAIN	SNA
11	MAIN-PBA		PG21"	1		-
12	UNIT-BRKT/MAIN	BH75-00091A	UNIT	1		SA
13	SCREW-TAPTITE	6003-000010	BH 3 X 10	2	S/BNC-COVER + UNIT-B/MAIN	SNA
14	SCREW-TAPTITE	6003-000122	BH 4 X 12	2	UNIT-B/MAIN + UNIT-B/CDT	SNA
15	SCREW-TAPTITE	6003-000009	BH 4 X 16	2	UNIT-B/MAIN + UNIT-FRONT	SNA
16	SCREW-TAPTITE	6003-000010	BH 3 X 10	1	B/BOTTOM + UNIT-B/MAIN	SNA
17	SCREW-TAPTITE	6003-000122	BH 4 X 12	2	UNIT-B/MAIN + UNIT-B/CDT	SNA
18	BRKT-BOTTOM	BH70-10497A	SECC T1.0	1		SNA
19	UNIT-STAND	BH75-00065A	UNIT	1		SA
20	SCREW-TAPTITE	6003-000010	BH 3 X 10	3	UNIT-B/VIDEO + HEAT-SINK	SNA
21	UNIT-BRKT VIDEO	BH75-00061A	UNIT	1		SA
22	VIDEO PBA		PG21"	1		-
23	UNIT-SHIELD/VIDEO	BH75-00085A	UNIT	1		SA
24	SCREW-TAPTITE	6003-000010	BH 3 X 10	2		SNA
25	UNIT-SHIELD TOP	BH75-00067A	UNIT	1		SA
26	SCREW-TAPTITE	6003-000010	BH 3 X 10	9	UNIT-S/TOP + BRKT	SNA
27	CAP-SCREW	BH72-60628A	ABS HB 1V16	2		SNA
28	SCREW-TAPTITE	6003-000009	BH 4 X 16	4	C/REAR + UNIT-FRONT	SNA
29	UNIT-COVER REAR	BH75-00104A	UNIT	1		SA

7 Electrical Parts List

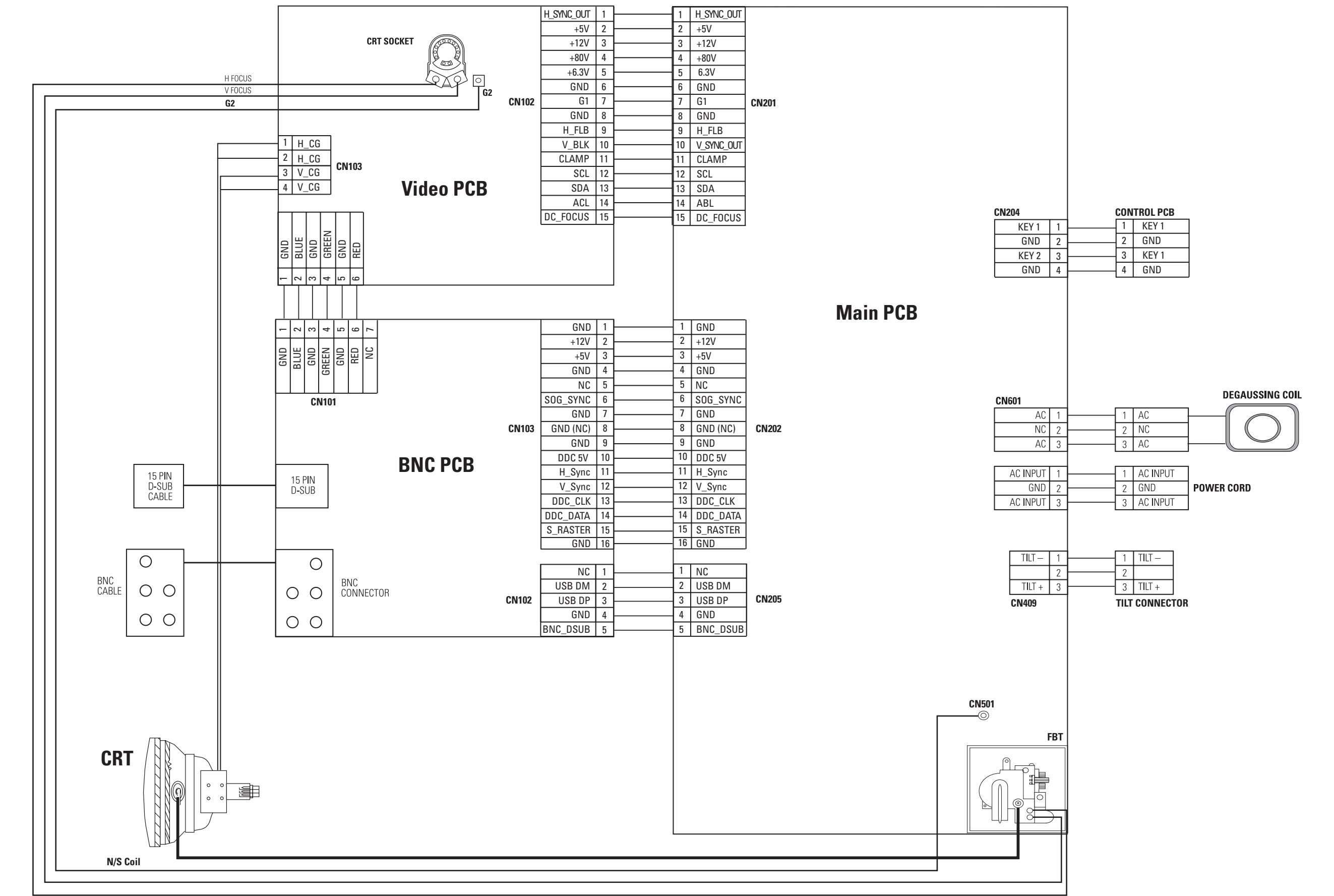
7-1 Main PCB Parts

Loc. No.	Code No.	Description	Specification	Remarks
-	BH98-00336A	ASSY PCB/MISC-,SUB	BL17MO,-,-	SNA
C414	2306-000147	C-FILM,MPPF	1uF,5%,250V,BK,26x24x15,22.5mm	
C415	2306-000234	C-FILM,MPPF	560nF,5%,250V,BK,26x20x13,20	
C602	2305-001049	C-FILM,MPEF	1000nF,10%,275V,BK,31x23x13mm,27.5	△
C607	2401-003391	C-AL	220uF,20%,450V,GP,BK,25x50,10	△
C701	2305-001049	C-FILM,MPEF	1000nF,10%,275V,BK,31x23x13mm,27.5	
CIS	BH39-00368A	CBF HARNESS	AQ17IS,U2464#26-4C,U2464,80°C,300V,5P,5P,240MM,BLK,26AWG*4,SMH200-05,SMH200-05,B	
CIS	BH68-00001A	LABEL/MARK-CDT	ART-PAPER 100G,-,WHT,BLK,-,ALL,CDT	SNA
CIS	BH73-60304C	RUBBER-SUPPORT	DP15LT,CR V0,GRAY,-,14*7*10,-,-	SNA
CIS	BH75-00091A	UNIT/BRKT-MAIN/PCB	PG21LS,SECC,T1.0,-,-	SNA
CIS	6003-000122	SCREW-TAPTITE	BH,+B,M4,L12,ZPC(YEL),SWRCH18	SNA
CIS	BH70-00023A	BRKT-M/PCB	PG21LS,SECC,T1.0,-,-	SNA
CIS	BH70-00025A	FRAME-BOTTOM	PG21LS,SECC T1.0,T1.0,-,-	SNA
CIS	BH71-00049A	EARTH-PLATE	PG21LS,PBS,T0.15,-,-	SNA
CIS	BH46-00005J	MICOM-S/W	CF21MS,-,-,-,-,-	SNA
CN201	3711-004352	CONNECTOR-HEADER	BOX,15P,1R,2MM,STRAIGHT,SN	SNA
CN202	3711-004351	CONNECTOR-HEADER	NOWALL,16P,1R,2.54MM,STRAIGHT,SN	SNA
CN204	3711-004182	CONNECTOR-HEADER	BOX,10P,1R,-,STRAIGHT,SN	SNA
CN205	3711-004484	CONNECTOR-HEADER	BOX,5P,1R,2mm,STRAIGHT,SN	SNA
CN211	3711-004484	CONNECTOR-HEADER	BOX,5P,1R,2mm,STRAIGHT,SN	SNA
CN212	3711-004484	CONNECTOR-HEADER	BOX,5P,1R,2mm,STRAIGHT,SN	SNA
CN401	3711-003989	CONNECTOR-HEADER	NOWALL,4P,1R,8mm,STRAIGHT,SN	SNA
CN409	3711-000885	CONNECTOR-HEADER	3WALL,3P,1R,2.5mm,STRAIGHT,SN	SNA
CORE_1	3301-000233	CORE-FERRITE	ZZ,18x9.5x28mm,-,-	SNA
CORE_2	3301-000233	CORE-FERRITE	ZZ,18x9.5x28mm,-,-	SNA
D402	0402-001394	DIODE-RECTIFIER	SB540,40V,5A,DO-201AD,BK	
D456	0402-001294	DIODE-RECTIFIER	UF5404L-5709,400V,3A,DO-201AD,BK	
D505	0402-001295	DIODE-RECTIFIER	GUR460L-5700,600V,4A,DO-201AD,BK	
D507	0402-001295	DIODE-RECTIFIER	GUR460L-5700,600V,4A,DO-201AD,BK	
D647	0402-000250	DIODE-RECTIFIER	RG4C,1000V,1A,-	△
FG601	3601-000455	FUSE-CARTRIDGE	250V,4A,TIME-LAG,CERAMIC,5.2x20mm	△
G2_EY599	BH39-00249C	LEAD CONNECTOR ASSY	CF21MS,U1032#22,U/CSA,1P,-,RED,#22,YFH800-01L,YRT-018,BK,-,-,250MM,1032#22,SJ	SNA
H/S+FBT	6003-000122	SCREW-TAPTITE	BH,+B,M4,L12,ZPC(YEL),SWRCH18	SNA
HS402_CLAMP	6502-000132	CABLE CLAMP	DAWS-1NE,ID11,L21.0,NTR,NYLON66	SNA
HS504_CLAMP	6502-000001	CABLE CLAMP	DAWH-5NB,D15,L35,NYLON66,NTR	SNA
IC201	0903-001237	IC-MICROCONTROLLER	ST72774,8BIT,DIP,42P,-,24MHZ,ST,HCMOS,PLASTIC,5.5V,-,0TO+70C,1KB,60KB,8BIT,-,IC-	SNA
IC201_SOCKET	3704-001071	SOCKET-IC	42P,DIP,SN,1.778mm	
IC250	1204-001697	IC-DEF. PROCESSOR	TDA9112,DIP,32P,350MIL,PLASTIC,13.2V,-,0TO+70C,ST,DEF.PROCESSOR	
IC403	BH13-00009A	IC-H/V CONVERGENCE	PG17/19,AN5452,SIP,12P,H/V CONVERGENCE,-,1171MW	
IC620	0604-001018	PHOTO-COUPLER	DAR-TR,63-125%,200mW,DIP-4,ST	△ SNA
JW01	BH39-40306D	CBF-HARNESS	,80MM,BLK,1015,AWG22,-,-,-,-,-	
L402	BH27-20345J	COIL-HORIZ.CENTER	-.3.5mH,-,OB6*30-1HHA,-,-,-,-,6.0ohm,-,-,-,BULK	
L403	BH26-00071A	TRANS-H.LINEARITY	HL-1420,PG19NS,5P,49.0mH/3.5uH,-,49.0mH/3.5uH,-,-,-,19.0ohm/0.02ohm,-,DR1420(C)6	
L503	BH27-00037A	COIL-CHOKE	3.5uH,+/-10%,12*15,BULK,-,-	
L601	BH27-00025A	COIL-LINE FILTER	-.24.0mH,-,SQE-2828,65.5Ts,PHENOLIC,-,-,0.20 ohm,-,-,-,BK	
L701	BH27-00053A	COIL CHOKE	TO-2012,195uH,-,20.20*12.57*6.35,65Ts,PHENOLIC,-,-,0.08ohm,17.0*32.0*10.0,-,-,-	
LC601	2901-001173	FILTER-EMI AC LINE	250V,3A,U/CSA/TUV/SEMKO,2200pF,32x39.7x23.4mm,BK,-	△
M/PCB+B/M-PCB	6003-000010	SCREW-TAPTITE	BWH,+B,M3,L10,ZPC(YEL),SWRCH1	SNA
POS601	1404-001154	THERMISTOR-PTC	4.50HM,+30%/-20%,220V,270VAC,21A,-,BK	
R400	2003-000459	R-METAL OXIDE(S)	100ohm,5%,3W,AA,TP,6x16mm	
R401	2003-000459	R-METAL OXIDE(S)	100ohm,5%,3W,AA,TP,6x16mm	
R403	2006-000132	R-CEMENT	33ohm,5%,5W,CB,BK,9x13x25mm	SNA
R407	2003-000423	R-METAL OXIDE(S)	1.2ohm,5%,3W,AA,TP,6x16mm	

8 Block Diagram

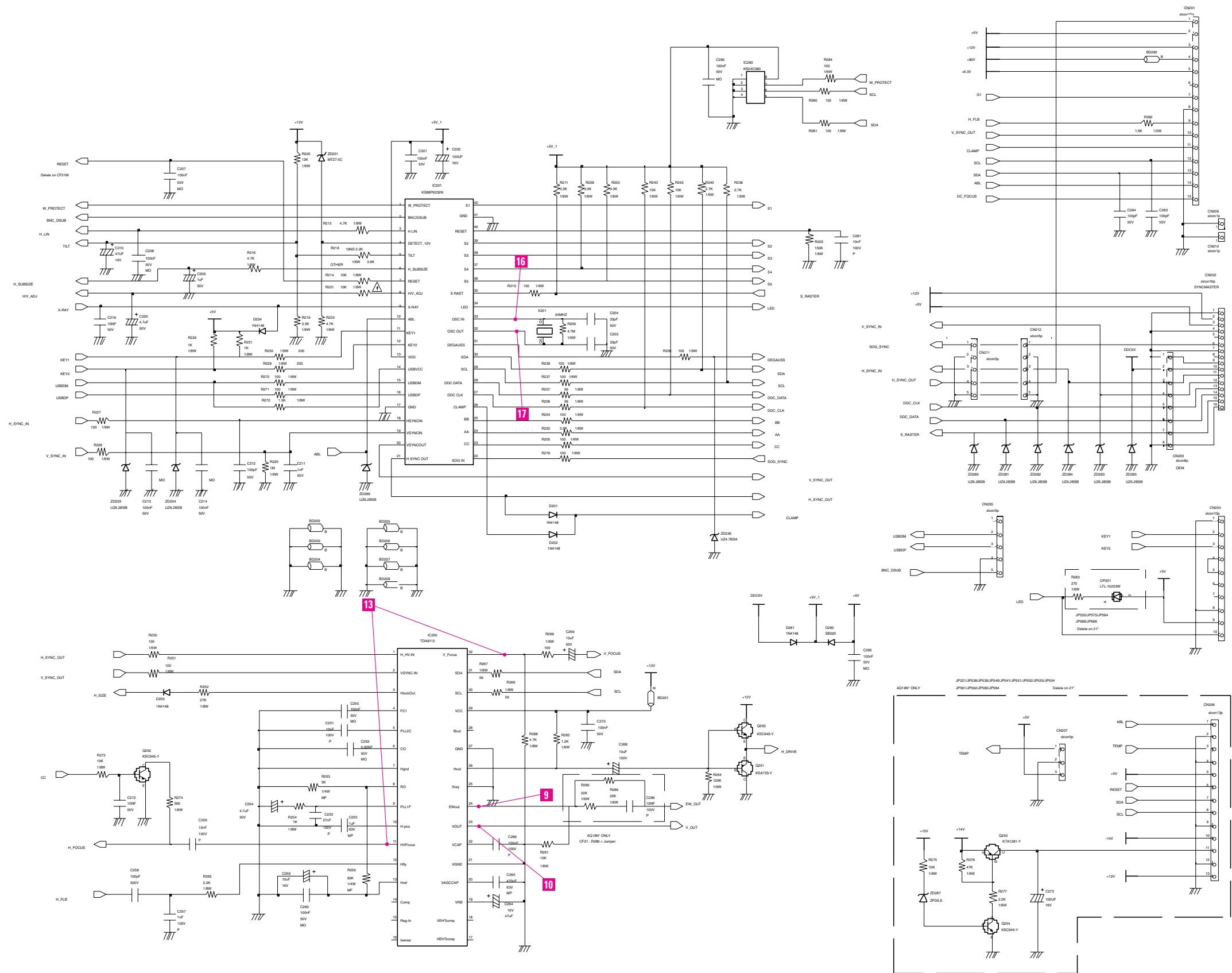


9 Wiring Diagram



10 Schematic Diagrams

10-1-1 Main Part Schematic Diagram



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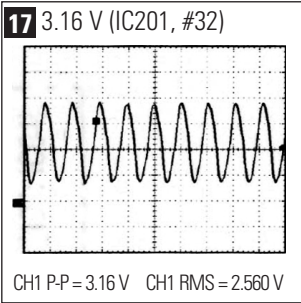
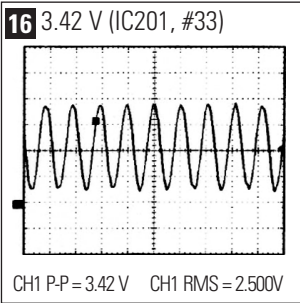
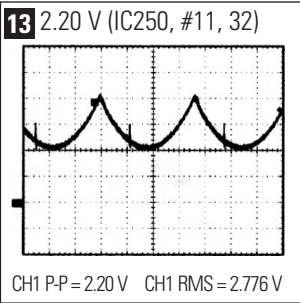
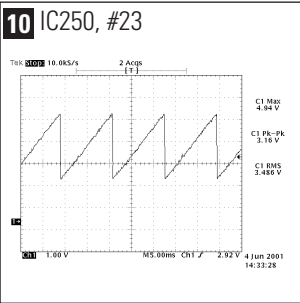
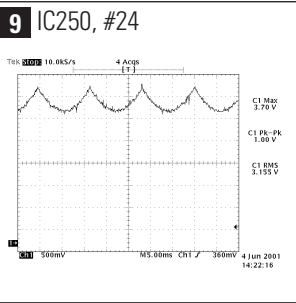
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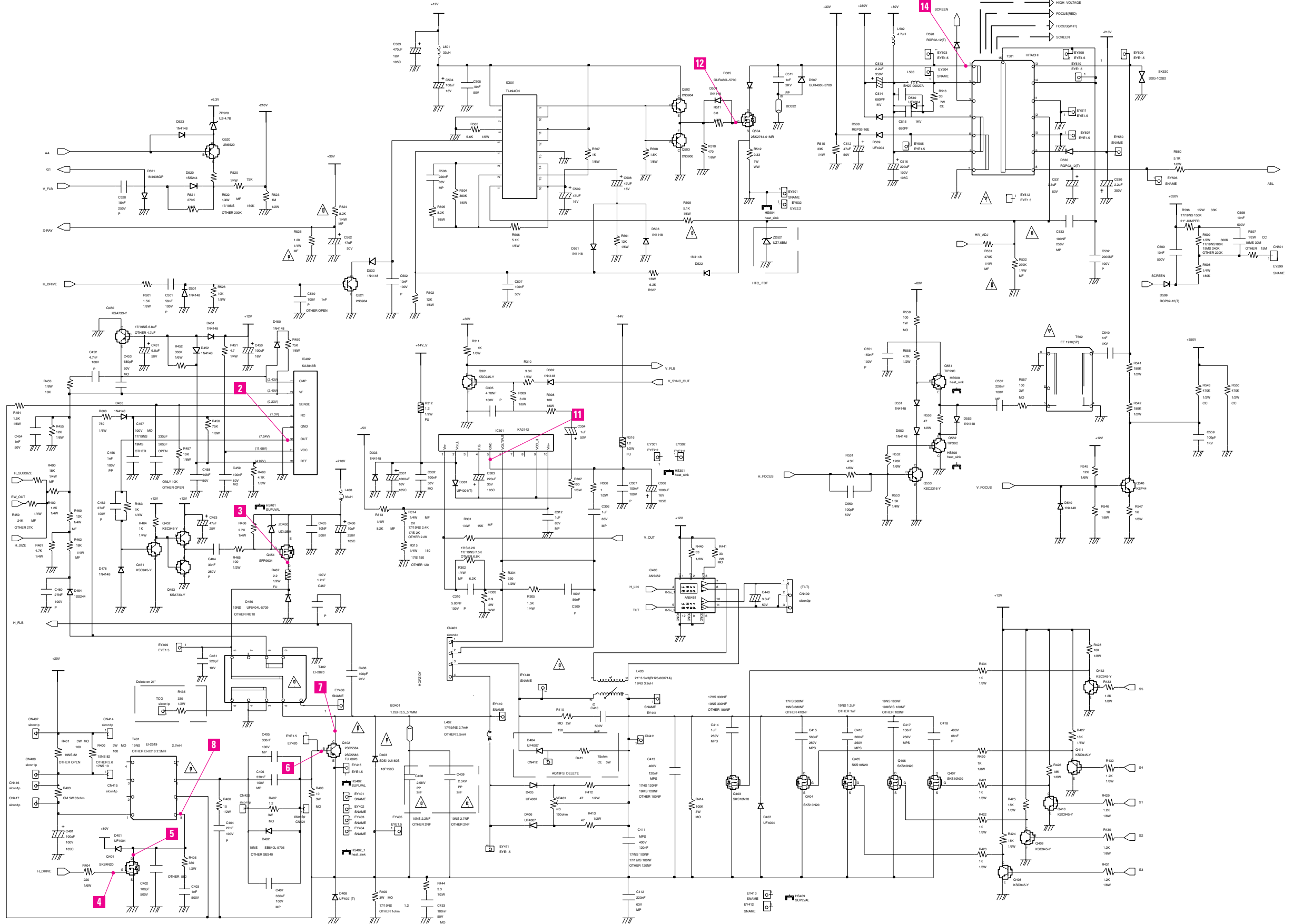
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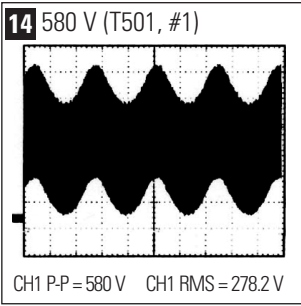
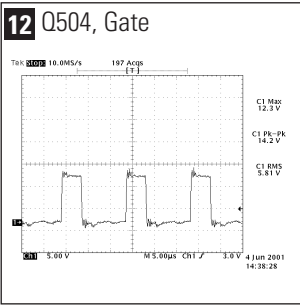
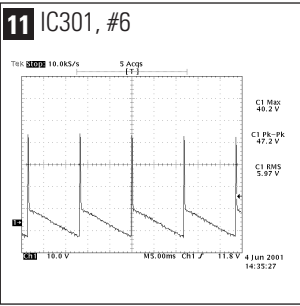
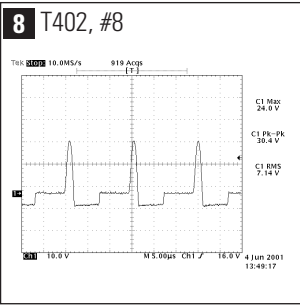
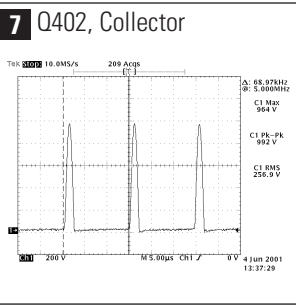
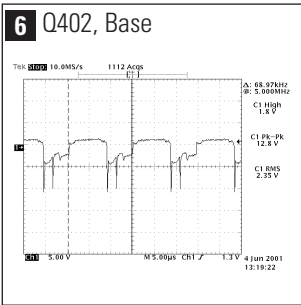
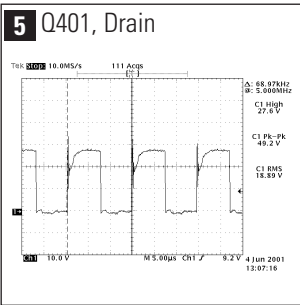
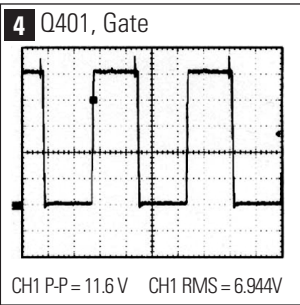
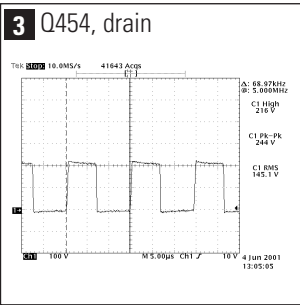
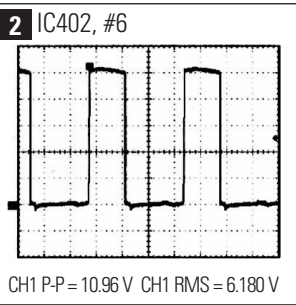
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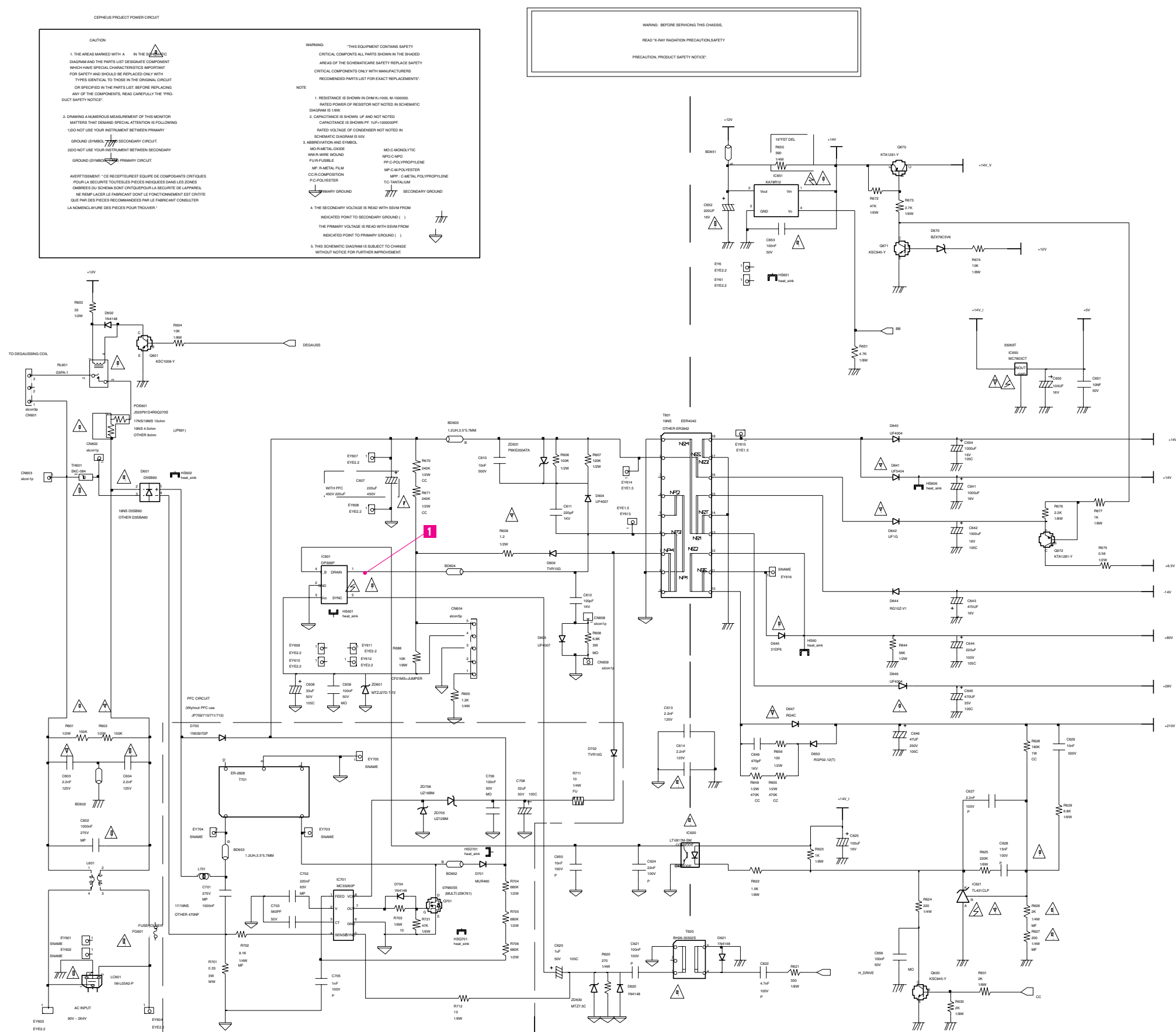
10-1-2 Main Part Schematic Diagram



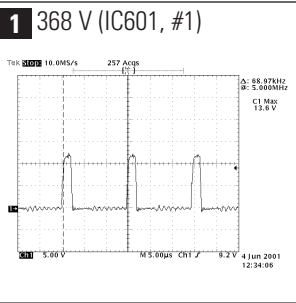
10 Schematic Diagrams



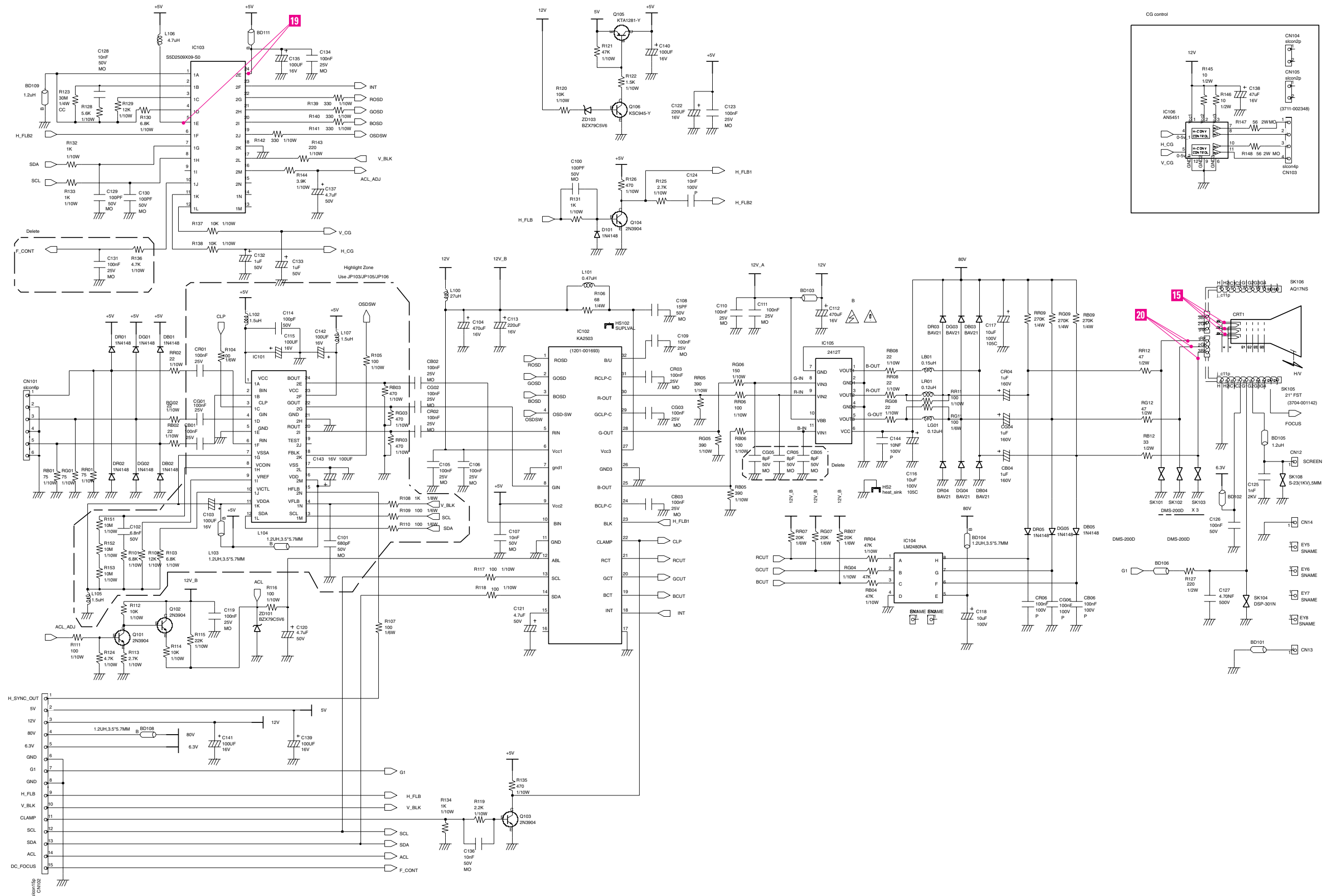
10-1-3 Main Part Schematic Diagram



10 Schematic Diagrams

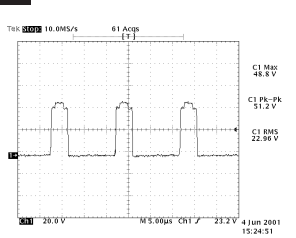


10-2 Video Part Schematic Diagram

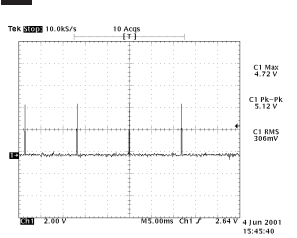


10 Schematic Diagrams

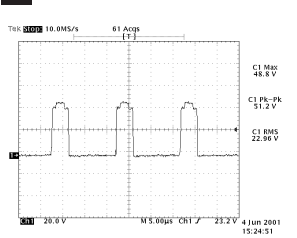
15 CRT Socket, Red, Green, Blue



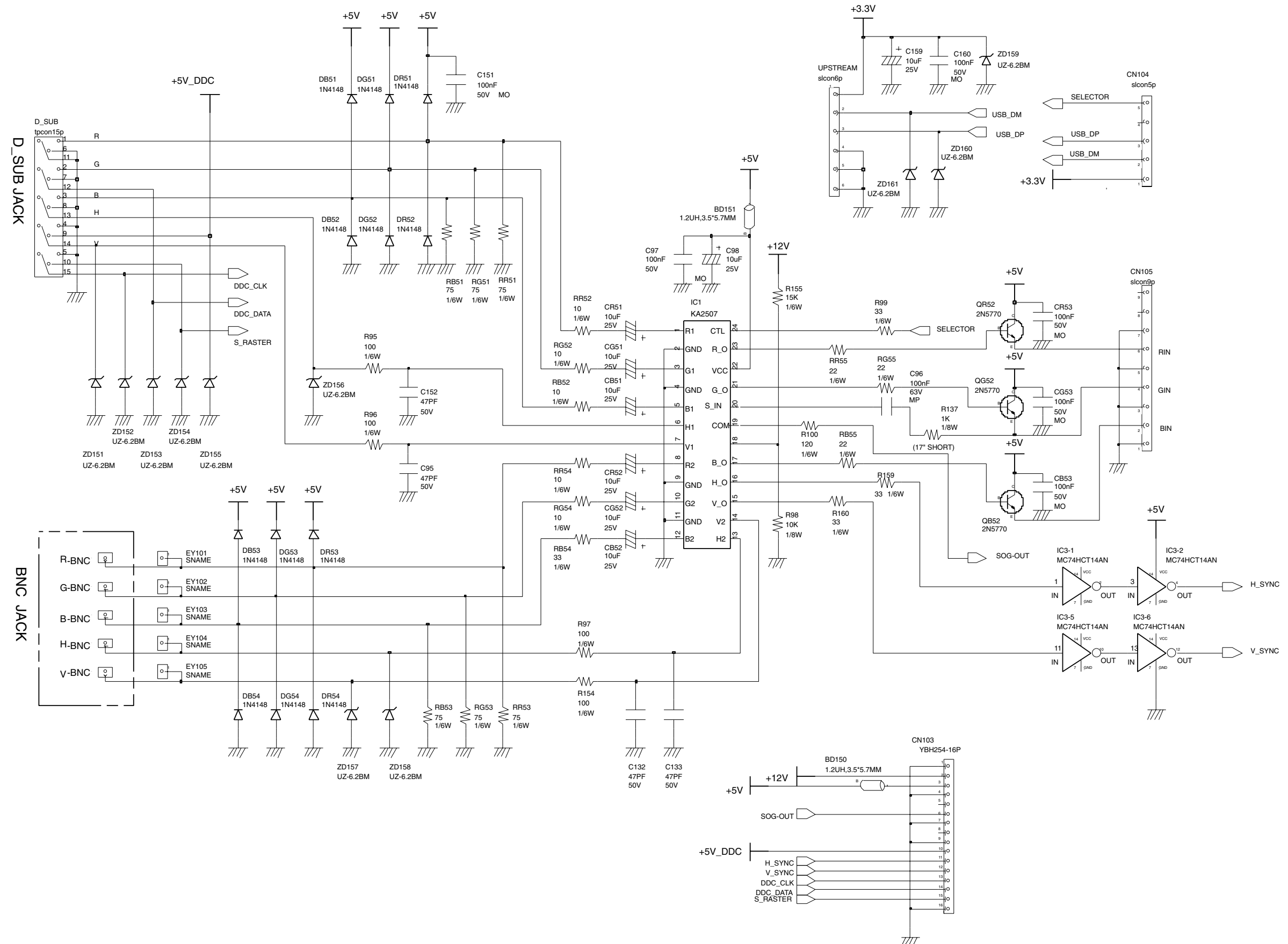
19 IC103, #5, 24



20 R, G, B, Video



10-3 BNC Part Schematic Diagram



Memo

Memo

Memo

7 Electrical Parts List

Loc. No.	Code No.	Description	Specification	Remarks
R516	2006-001066	R-CEMENT	330HM,5%,7W,CS,BK,9X10X54MM	
R608	2003-000756	R-METAL OXIDE(S)	6.8Kohm,5%,3W,AA,TP,6x16mm	
RL601	3501-001111	RELAY-POWER	12Vdc,250mW,5A,1FormA,15mS,5mS	△
T401	BH26-00094A	TRANS HORIZ.DRIVE	EI-2218,PN19,8P,2.5mH,78uH,0.6ohm/0.12ohm,PL3,DMR30,EI-2218,18.0uH,-	△
T402	BH26-00093A	TRANS-H-.PULSE	EI-2820,PN19,10P,1.5mH,130uH,1.2ohm/0.32ohm,PL3,DMR30,EI-2820,70uH MAX	△
T501	BH26-00129A	TRANS FBT	Y268109,AQ17IS,97.8 UH,HV45,FUR3557,11.0,-80.0V,14P,-10-+60,BK,26.0KV	
T502	BH26-00086A	TRANS-FOCUS	EE1916,-5P,1.7mH MIN,-,255mH MIN,-,0.85ohm/32.0ohm,-,EE1916(PL3,SL-2),EE19*	△
T601	BH26-00132A	TRANS POWER	ER-4042(18P),AQ19NS,130UH,18P,PL3,DMR30,J2A-1,EER4042(PL3),0.110 OHM	
T620	BH26-30302S	TRANS-SYNC.	,-,-,-,-,3-1(250UH),4-6(250UH),,-,0.130HM,-,SB-5S,UU1116,-,-,B,-	△
T701	BH27-00081A	COIL-PFC	EER-2828,135uH,10%,EER2828(PL3,J2A-1),USTCO.25*932Ts,PHELOLIC,-,GREEN COLOR TAP	
TH601	1404-001076	THERMISTOR-NTC	8ohm,15%,17mW/C,TP	△
VR401	2103-001049	VR-SEMI	100ohm,30%,1/5W,SIDE	
BD201	3301-000011	CORE-FERRITE BEAD	AA,3.5x1.0x5.7mm,1500,2375G	SNA
BD202	3301-000011	CORE-FERRITE BEAD	AA,3.5x1.0x5.7mm,1500,2375G	SNA
BD203	3301-000011	CORE-FERRITE BEAD	AA,3.5x1.0x5.7mm,1500,2375G	SNA
BD204	3301-000011	CORE-FERRITE BEAD	AA,3.5x1.0x5.7mm,1500,2375G	SNA
BD205	3301-000011	CORE-FERRITE BEAD	AA,3.5x1.0x5.7mm,1500,2375G	SNA
BD206	3301-000011	CORE-FERRITE BEAD	AA,3.5x1.0x5.7mm,1500,2375G	SNA
BD207	3301-000011	CORE-FERRITE BEAD	AA,3.5x1.0x5.7mm,1500,2375G	SNA
BD208	3301-000011	CORE-FERRITE BEAD	AA,3.5x1.0x5.7mm,1500,2375G	SNA
BD280	3301-000011	CORE-FERRITE BEAD	AA,3.5x1.0x5.7mm,1500,2375G	SNA
BD401	3301-000011	CORE-FERRITE BEAD	AA,3.5x1.0x5.7mm,1500,2375G	SNA
BD532	3301-000011	CORE-FERRITE BEAD	AA,3.5x1.0x5.7mm,1500,2375G	SNA
BD602	3301-000011	CORE-FERRITE BEAD	AA,3.5x1.0x5.7mm,1500,2375G	SNA
BD603	3301-000011	CORE-FERRITE BEAD	AA,3.5x1.0x5.7mm,1500,2375G	SNA
BD604	3301-000011	CORE-FERRITE BEAD	AA,3.5x1.0x5.7mm,1500,2375G	SNA
BD651	3301-000011	CORE-FERRITE BEAD	AA,3.5x1.0x5.7mm,1500,2375G	SNA
BD652	3301-000011	CORE-FERRITE BEAD	AA,3.5x1.0x5.7mm,1500,2375G	SNA
BD653	3301-000011	CORE-FERRITE BEAD	AA,3.5x1.0x5.7mm,1500,2375G	SNA
C201	2201-000119	C-CERAMIC,DISC	100nF,+80-20%,50V,Y5V,TP,8x3,5	
C202	2401-000042	C-AL	100uF,20%,16V,GP,TP,6.3x7,5	
C203	2201-000483	C-CERAMIC,DISC	0.033nF,5%,50V,NP0,TP,5x3,5,5	
C204	2201-000483	C-CERAMIC,DISC	0.033nF,5%,50V,NP0,TP,5x3,5,5	
C208	2202-002009	C-CERAMIC,MLC-AXIAL	100nF,+80-20%,50V,Y5V,TP,2.3X3	
C209	2401-000603	C-AL	1uF,20%,50V,GP,TP,5x11,5	
C210	2401-001509	C-AL	47uF,20%,16V,GP,TP,5x7mm,5	
C211	2201-000017	C-CERAMIC,DISC	1nF,10%,50V,Y5P,TP,5x3,5,5	
C212	2201-000144	C-CERAMIC,DISC	0.1nF,5%,50V,NP0,TP,8.5x3,5	
C213	2202-002009	C-CERAMIC,MLC-AXIAL	100nF,+80-20%,50V,Y5V,TP,2.3X3	
C214	2202-002009	C-CERAMIC,MLC-AXIAL	100nF,+80-20%,50V,Y5V,TP,2.3X3	
C216	2202-002008	C-CERAMIC,MLC-AXIAL	10nF,+80-20%,50V,Y5V,TP,2.3X3.	
C220	2401-001281	C-AL	4.7uF,20%,50V,WT,TP,5x11,5	
C250	2202-000654	C-CERAMIC,MLC-RADIAL	100nF,10%,50V,X7R,TP,5.1x6.6x3.2mm,5	
C251	2301-000148	C-FILM,PEF	10nF,5%,100V,TP,7x3.2x7mm,5mm	
C252	2202-002149	C-CERAMIC,MLC-RADIAL	0.82NF,2%,50V,NP0,TP,5.1X3.2X6.4MM,5	
C253	2301-000020	C-FILM,PEF	27nF,5%,100V,TP,7.3x4x12.5mm,5	
C254	2401-002075	C-AL	4.7uF,20%,50V,GP,TP,5x11,5	
C255	2305-000237	C-FILM,MPEF	1uF,5%,63V,TP,7.5x15.5mm,5mm	
C256	2301-000148	C-FILM,PEF	10nF,5%,100V,TP,7x3.2x7mm,5mm	
C257	2301-000188	C-FILM,PEF	1nF,5%,100V,TP,10.5x12.5x6,5,5	
C258	2201-000132	C-CERAMIC,DISC	0.1nF,10%,500V,Y5P,TP,6.5x3,5	
C259	2401-000050	C-AL	10uF,20%,16V,GP,TP,5x11,2,5	
C260	2202-000654	C-CERAMIC,MLC-RADIAL	100nF,10%,50V,X7R,TP,5.1x6.6x3.2mm,5	
C264	2401-000031	C-AL	47uF,20%,16V,GP,TP,5x11,5	
C265	2305-000412	C-FILM,MPEF	470nF,5%,63V,TP,-,5mm	

Loc. No.	Code No.	Description	Specification	Remarks
C266	2301-000168	C-FILM,PEF	150nF,5%,100V,TP,11.5x19mm,7.5	
C268	2401-003484	C-AL	10uF,20%,100V,LZ,TP,6.3X11,5	
C269	2401-000480	C-AL	10uF,20%,50V,GP,TP,5x11,5	
C270	2201-000119	C-CERAMIC,DISC	100nF,+80-20%,50V,Y5V,TP,8x3,5	
C272	2202-002008	C-CERAMIC,MLC-AXIAL	10nF,+80-20%,50V,Y5V,TP,2.3X3.	
C280	2202-002009	C-CERAMIC,MLC-AXIAL	100nF,+80-20%,50V,Y5V,TP,2.3X3	
C281	2301-000148	C-FILM,PEF	10nF,5%,100V,TP,7x3.2x7mm,5mm	
C283	2201-000144	C-CERAMIC,DISC	0.1nF,5%,50V,NP0,TP,8.5x3,5	
C284	2201-000144	C-CERAMIC,DISC	0.1nF,5%,50V,NP0,TP,8.5x3,5	
C285	2202-002009	C-CERAMIC,MLC-AXIAL	100nF,+80-20%,50V,Y5V,TP,2.3X3	
C286	2301-000148	C-FILM,PEF	10nF,5%,100V,TP,7x3.2x7mm,5mm	
C301	2401-000142	C-AL	1000uF,20%,16V,WT,TP,10x20,5	
C302	2202-002009	C-CERAMIC,MLC-AXIAL	100nF,+80-20%,50V,Y5V,TP,2.3X3	
C303	2401-002274	C-AL	220uF,20%,35V,WT,TP,10x12.5,5	
C304	2401-000597	C-AL	1uF,20%,50V,GP,TP,4x7mm,1.5mm	
C305	2301-000013	C-FILM,PEF	4.7nF,5%,100V,TP,10.5x12.5x6.5	
C306	2305-000237	C-FILM,MPEF	1uF,5%,63V,TP,7.5x15.5mm,5mm	
C307	2301-000010	C-FILM,PEF	100nF,5%,100V,TP,11.5x12.5mm,5	
C308	2401-000142	C-AL	1000uF,20%,16V,WT,TP,10x20,5	
C309	2301-000294	C-FILM,PEF	56nF,5%,100V,TP,9.5x12.5mm,5mm	
C310	2301-000287	C-FILM,PEF	5.6nF,5%,100V,TP,10.5x12.5x6.5	
C312	2305-000237	C-FILM,MPEF	1uF,5%,63V,TP,7.5x15.5mm,5mm	
C401	2401-000235	C-AL	100uF,20%,100V,WT,TP,12.5x20,5	
C402	2201-000132	C-CERAMIC,DISC	0.1nF,10%,500V,Y5P,TP,6.5x3,5	
C403	2201-000291	C-CERAMIC,DISC	1nF,10%,500V,Y5P,TP,7.5x3.5,5	
C404	2301-000020	C-FILM,PEF	27nF,5%,100V,TP,7.3x4x12.5mm,5	
C405	2305-000624	C-FILM,MPEF	330nF,10%,100V,TP,-,5mm	
C406	2305-000624	C-FILM,MPEF	330nF,10%,100V,TP,-,5mm	
C407	2305-000624	C-FILM,MPEF	330nF,10%,100V,TP,-,5mm	
C408	2303-001022	PEF CAPACITOR	2nF,5%,2.5KV,TP,23x12x19mm,7.5	△
C409	2303-001022	PEF CAPACITOR	2nF,5%,2.5KV,TP,23x12x19mm,7.5	△
C410	2201-000291	C-CERAMIC,DISC	1nF,10%,500V,Y5P,TP,7.5x3.5,5	
C411	2306-000127	C-FILM,MPPF	120nF,5%,400V,TP,21.5x17mm,5mm	
C413	2306-000127	C-FILM,MPPF	120nF,5%,400V,TP,21.5x17mm,5mm	
C416	2306-000179	C-FILM,MPPF	300nF,5%,250V,TP,20x18.5x10.5,	
C417	2306-000131	C-FILM,MPPF	150nF,5%,250V,TP,19x16x7.5,7.5	
C418	2301-001249	C-FILM,MPPF	68nF,5%,400V,TP,19x7x15mm,7.5	
C440	2401-003080	C-AL	3.3uF,20%,50V,BP,TP,5X11,2.5	
C450	2401-000025	C-AL	100uF,20%,16V,GP,TP,6.3x11,5	
C451	2401-001625	C-AL	6.8uF,20%,50V,GP,TP,5x11,5	
C452	2301-000148	C-FILM,PEF	10nF,5%,100V,TP,7x3.2x7mm,5mm	
C453	2202-000561	C-CERAMIC,MLC-RADIAL	680pF,5%,50V,NP0,TP,5.1x3.2,5.	
C454	2201-000017	C-CERAMIC,DISC	1nF,10%,50V,Y5P,TP,5x3.5,5	
C456	2303-000011	C-FILM,PPF	1nF,5%,100V,TP,14x11.5mm,7.5mm	
C457	2202-000470	C-CERAMIC,MLC-RADIAL	330pF,5%,100V,NP0,TP,5.1x5.1x3	
C458	2202-002008	C-CERAMIC,MLC-AXIAL	10nF,+80-20%,50V,Y5V,TP,2.3X3.	
C459	2202-002009	C-CERAMIC,MLC-AXIAL	100nF,+80-20%,50V,Y5V,TP,2.3X3	
C460	2301-000020	C-FILM,PEF	27nF,5%,100V,TP,7.3x4x12.5mm,5	
C461	2201-000012	C-CERAMIC,DISC	0.22nF,10%,1kV,Y5P,TP,6.3x5,5	
C462	2301-000020	C-FILM,PEF	27nF,5%,100V,TP,7.3x4x12.5mm,5	
C463	2401-001548	C-AL	47uF,20%,25V,WT,TP,5x11,5	
C464	2301-001322	C-FILM,PPF	33nF,5%,250V,TP,17.5x5x11mm,7.5	
C465	2201-000019	C-CERAMIC,DISC	10nF,+80-20%,500V,Y5V,TP,13.5x4mm,5	
C466	2401-003525	C-AL	10uF,20%,250V,LZ,TP,10X20,5	
C467	2301-000102	C-FILM,PEF	1.2nF,5%,100V,TP,5.4x10mm,5mm	

Loc. No.	Code No.	Description	Specification	Remarks
C468	2201-000131	C-CERAMIC,DISC	0.1nF,10%,2kV,Y5P,TP,6.3x5,5	
C501	2301-000294	C-FILM,PEF	56nF,5%,100V,TP,9.5x12.5mm,5mm	
C502	2301-000148	C-FILM,PEF	10nF,5%,100V,TP,7x3.2x7mm,5mm	
C503	2401-001378	C-AL	470uF,20%,16V,WT,TP,10x20,5	
C504	2401-000292	C-AL	100uF,20%,16V,WT,TP,8x11.5mm,5	
C505	2201-000163	C-CERAMIC,DISC	10nF,+80-20%,50V,Y5V,TP,7x3,2,5	
C506	2305-001041	C-FILM,MPEF	220nF,5%,63V,TP,7.5x4.5x13.5,5	
C507	2201-000119	C-CERAMIC,DISC	100nF,+80-20%,50V,Y5V,TP,8x3,5	
C508	2401-000031	C-AL	47uF,20%,16V,GP,TP,5x11,5	
C509	2401-000031	C-AL	47uF,20%,16V,GP,TP,5x11,5	
C510	2301-000188	C-FILM,PEF	1nF,5%,100V,TP,10.5x12.5x6.5,5	
C511	2303-000147	C-FILM,PPF	1NF,5%,2KV,TP,23X13X8MM,7.5	
C512	2401-001576	C-AL	47uF,20%,50V,GP,TP,8x11.5,5	
C513	2401-000638	C-AL	2.2uF,20%,350V,WT,TP,10x12.5mm	
C514	2201-000325	C-CERAMIC,DISC	2.2nF,10%,500V,Y5P,TP,9.5x4,5	
C516	2401-000770	C-AL	220uF,20%,100V,WT,TP,13*25,5mm	
C520	2301-001027	C-FILM,PEF	15nF,10%,250V,TP,9.5x12x4.5,5m	
C530	2401-000638	C-AL	2.2uF,20%,350V,WT,TP,10x12.5mm	
C531	2401-000026	C-AL	3.3UF,20%,50V,GP,TP,5X11,5	
C532	2301-001480	C-FILM,MPEF	2000NF,5%,100V,TP,17X16.5X9.5,7.5	
C533	2305-000009	C-FILM,MPEF	100nF,5%,250V,TP,13x11x6.5,7.5	△
C540	2201-000285	C-CERAMIC,DISC	1nF,10%,1kV,Y5P,TP,8x5,5	
C550	2201-000144	C-CERAMIC,DISC	0.1nF,5%,50V,NP0,TP,8.5x3,5	
C551	2301-000168	C-FILM,PEF	150nF,5%,100V,TP,11.5x19mm,7.5	
C552	2305-000004	C-FILM,MPEF	220nF,10%,100V,TP,12.7x16,5mm	
C559	2201-000129	C-CERAMIC,DISC	0.1nF,10%,1kV,Y5P,TP,7x4,5	
C562	2401-001576	C-AL	47uF,20%,50V,GP,TP,8x11.5,5	
C598	2201-000019	C-CERAMIC,DISC	10nF,+80-20%,500V,Y5V,TP,13.5x4mm,5	
C599	2201-000019	C-CERAMIC,DISC	10nF,+80-20%,500V,Y5V,TP,13.5x4mm,5	
C603	2201-000023	C-CERAMIC,DISC	2.2nF,20%,125V,Y5U,TP,11x7,5	△
C604	2201-000023	C-CERAMIC,DISC	2.2nF,20%,125V,Y5U,TP,11x7,5	△
C608	2401-000015	C-AL	33uF,20%,50V,WT,-,6.3x11mm,2,5	
C609	2202-002009	C-CERAMIC,MLC-AXIAL	100nF,+80-20%,50V,Y5V,TP,2.3X3	
C610	2201-000019	C-CERAMIC,DISC	10nF,+80-20%,500V,Y5V,TP,13.5x4mm,5	
C611	2201-000012	C-CERAMIC,DISC	0.22nF,10%,1kV,Y5P,TP,6.3x5,5	
C612	2201-000129	C-CERAMIC,DISC	0.1nF,10%,1kV,Y5P,TP,7x4,5	
C613	2201-000023	C-CERAMIC,DISC	2.2nF,20%,125V,Y5U,TP,11x7,5	
C614	2201-000023	C-CERAMIC,DISC	2.2nF,20%,125V,Y5U,TP,11x7,5	△
C620	2401-000613	C-AL	1uF,20%,50V,WT,TP,5x11,5	
C621	2301-000010	C-FILM,PEF	100nF,5%,100V,TP,11.5x12.5mm,5	
C622	2301-000013	C-FILM,PEF	4.7nF,5%,100V,TP,10.5x12.5x6.5	
C624	2301-000016	C-FILM,PEF	22nF,5%,100V,TP,7.2x4.5x9.0mm,	
C625	2401-000025	C-AL	100uF,20%,16V,GP,TP,6.3x11,5	
C627	2301-000004	C-FILM,PEF	2.2nF,5%,100V,TP,5.5X10X2.9,5m	
C628	2301-000174	C-FILM,PEF	15nF,5%,100V,TP,7.2x4.0x7.5mm,	△
C629	2201-000019	C-CERAMIC,DISC	10nF,+80-20%,500V,Y5V,TP,13.5x4mm,5	
C641	2401-000142	C-AL	1000uF,20%,16V,WT,TP,10x20,5	
C642	2401-000142	C-AL	1000uF,20%,16V,WT,TP,10x20,5	
C643	2401-001378	C-AL	470uF,20%,16V,WT,TP,10x20,5	
C644	2401-000770	C-AL	220uF,20%,100V,WT,TP,13*25,5mm	
C645	2401-001422	C-AL	470uF,20%,35V,WT,TP,12.5x25,5	
C646	2401-000040	C-AL	47uF,20%,250V,WT,TP,16x25mm,7.	
C649	2201-000551	C-CERAMIC,DISC	0.47nF,10%,1kV,Y5P,TP,6.3x5,5	
C650	2401-000042	C-AL	100uF,20%,16V,GP,TP,6.3x7,5	
C651	2202-002008	C-CERAMIC,MLC-AXIAL	10nF,+80-20%,50V,Y5V,TP,2.3X3.	

Loc. No.	Code No.	Description	Specification	Remarks
C652	2401-000010	C-AL	220uF,20%,16V,GP,-,6.3x11mm,2.	△
C653	2201-000119	C-CERAMIC,DISC	100nF,+80-20%,50V,Y5V,TP,8x3,5	△
C654	2401-000142	C-AL	1000uF,20%,16V,WT,TP,10x20,5	
C655	2301-000148	C-FILM,PEF	10nF,5%,100V,TP,7x3.2x7mm,5mm	
C656	2202-002009	C-CERAMIC,MLC-AXIAL	100nF,+80-20%,50V,Y5V,TP,2.3X3	
C702	2305-001041	C-FILM,MPEF	220nF,5%,63V,TP,7.5x4.5x13.5,5	
C703	2201-000602	C-CERAMIC,DISC	0.56nF,5%,50V,SL,TP,10x3.5,5	
C705	2301-000188	C-FILM,PEF	1nF,5%,100V,TP,10.5x12.5x6.5,5	
C706	2202-002009	C-CERAMIC,MLC-AXIAL	100nF,+80-20%,50V,Y5V,TP,2.3X3	
C708	2401-000970	C-AL	22uF,20%,50V,WT,TP,5x11,5	
CN209	BH71-40300A	PIN-HINGE	-.BRASS,D2.36,SN,HEAT/SINK	SNA
CN210	BH71-40300A	PIN-HINGE	-.BRASS,D2.36,SN,HEAT/SINK	SNA
CN407	BH71-40300A	PIN-HINGE	-.BRASS,D2.36,SN,HEAT/SINK	SNA
CN408	BH71-40300A	PIN-HINGE	-.BRASS,D2.36,SN,HEAT/SINK	SNA
CN414	BH71-40300A	PIN-HINGE	-.BRASS,D2.36,SN,HEAT/SINK	SNA
CN415	BH71-40300A	PIN-HINGE	-.BRASS,D2.36,SN,HEAT/SINK	SNA
CN416	BH71-40300A	PIN-HINGE	-.BRASS,D2.36,SN,HEAT/SINK	SNA
CN417	BH71-40300A	PIN-HINGE	-.BRASS,D2.36,SN,HEAT/SINK	SNA
CN420	BH71-40300A	PIN-HINGE	-.BRASS,D2.36,SN,HEAT/SINK	SNA
CN421	BH71-40300A	PIN-HINGE	-.BRASS,D2.36,SN,HEAT/SINK	SNA
CN601	3711-000217	CONNECTOR-HEADER	1WALL,3P,1R,3.96mm,STRAIGHT,SN	SNA
CN602	BH71-40300A	PIN-HINGE	-.BRASS,D2.36,SN,HEAT/SINK	△ SNA
CN603	BH71-40300A	PIN-HINGE	-.BRASS,D2.36,SN,HEAT/SINK	SNA
CN608	BH71-40300A	PIN-HINGE	-.BRASS,D2.36,SN,HEAT/SINK	SNA
CN609	BH71-40300A	PIN-HINGE	-.BRASS,D2.36,SN,HEAT/SINK	SNA
D201	0401-000005	DIODE-SWITCHING	1N4148,100V,200mA,DO-35,TP	
D202	0401-000005	DIODE-SWITCHING	1N4148,100V,200mA,DO-35,TP	
D250	0401-000005	DIODE-SWITCHING	1N4148,100V,200mA,DO-35,TP	
D254	0401-000005	DIODE-SWITCHING	1N4148,100V,200mA,DO-35,TP	
D281	0401-000005	DIODE-SWITCHING	1N4148,100V,200mA,DO-35,TP	
D282	0402-001039	DIODE-RECTIFIER	SB020,20V,600mA,MPG06,TP	
D301	0402-000272	DIODE-RECTIFIER	UF4001,50V,1A,DO-41,TP	
D302	0401-000005	DIODE-SWITCHING	1N4148,100V,200mA,DO-35,TP	
D303	0401-000005	DIODE-SWITCHING	1N4148,100V,200mA,DO-35,TP	
D401	0402-000274	DIODE-RECTIFIER	UF4004,400V,1A,DO-41,TP	
D405	0402-000012	DIODE-RECTIFIER	UF4007,1KV,1A,DO-41,TP	
D406	0402-000012	DIODE-RECTIFIER	UF4007,1KV,1A,DO-41,TP	
D407	0402-000274	DIODE-RECTIFIER	UF4004,400V,1A,DO-41,TP	
D408	0402-000272	DIODE-RECTIFIER	UF4001,50V,1A,DO-41,TP	
D450	0401-000005	DIODE-SWITCHING	1N4148,100V,200mA,DO-35,TP	
D451	0401-000005	DIODE-SWITCHING	1N4148,100V,200mA,DO-35,TP	
D452	0401-000005	DIODE-SWITCHING	1N4148,100V,200mA,DO-35,TP	
D453	0401-000005	DIODE-SWITCHING	1N4148,100V,200mA,DO-35,TP	
D454	0401-000004	DIODE-SWITCHING	1SS244,250V,625mA,DO-34,TP	
D478	0401-000005	DIODE-SWITCHING	1N4148,100V,200mA,DO-35,TP	
D501	0401-000005	DIODE-SWITCHING	1N4148,100V,200mA,DO-35,TP	
D503	0401-000005	DIODE-SWITCHING	1N4148,100V,200mA,DO-35,TP	
D504	0401-000005	DIODE-SWITCHING	1N4148,100V,200mA,DO-35,TP	
D508	0402-000252	DIODE-RECTIFIER	RGPO2-16E,1.6KV,0.5A,DO-41,TP	
D509	0402-000274	DIODE-RECTIFIER	UF4004,400V,1A,DO-41,TP	
D510	0402-000274	DIODE-RECTIFIER	UF4004,400V,1A,DO-41,TP	
D520	0401-000004	DIODE-SWITCHING	1SS244,250V,625mA,DO-34,TP	
D521	0402-001114	DIODE-RECTIFIER	1N4936GP,400V,1A,DO-204AL,TP	
D522	0401-000005	DIODE-SWITCHING	1N4148,100V,200mA,DO-35,TP	
D523	0401-000005	DIODE-SWITCHING	1N4148,100V,200mA,DO-35,TP	

Loc. No.	Code No.	Description	Specification	Remarks
D530	0402-000017	DIODE-RECTIFIER	RGPD2-12,1200V,0.5A,DO-204AL,T	
D532	0401-000005	DIODE-SWITCHING	1N4148,100V,200mA,DO-35,TP	
D540	0401-000005	DIODE-SWITCHING	1N4148,100V,200mA,DO-35,TP	
D551	0401-000005	DIODE-SWITCHING	1N4148,100V,200mA,DO-35,TP	
D552	0401-000005	DIODE-SWITCHING	1N4148,100V,200mA,DO-35,TP	
D553	0401-000005	DIODE-SWITCHING	1N4148,100V,200mA,DO-35,TP	
D561	0401-000005	DIODE-SWITCHING	1N4148,100V,200mA,DO-35,TP	
D598	0402-000017	DIODE-RECTIFIER	RGPD2-12,1200V,0.5A,DO-204AL,T	
D599	0402-000017	DIODE-RECTIFIER	RGPD2-12,1200V,0.5A,DO-204AL,T	
D602	0401-000005	DIODE-SWITCHING	1N4148,100V,200mA,DO-35,TP	
D604	0402-000012	DIODE-RECTIFIER	UF4007,1KV,1A,DO-41,TP	
D605	0402-000012	DIODE-RECTIFIER	UF4007,1KV,1A,DO-41,TP	
D606	0402-000546	DIODE-RECTIFIER	TVR10G,400V,1.0A,DO-41,TP	
D620	0401-000005	DIODE-SWITCHING	1N4148,100V,200mA,DO-35,TP	
D621	0401-000005	DIODE-SWITCHING	1N4148,100V,200mA,DO-35,TP	
D640	0402-000274	DIODE-RECTIFIER	UF4004,400V,1A,DO-41,TP	
D642	0402-001118	DIODE-RECTIFIER	UF1G,400V,1.2A,DO-204AL,TP	△
D644	0402-001190	DIODE-RECTIFIER	RG10Z,200V,1.2A,DO-15,TP	
D646	0402-000274	DIODE-RECTIFIER	UF4004,400V,1A,DO-41,TP	△
D650	0402-000017	DIODE-RECTIFIER	RGPD2-12,1200V,0.5A,DO-204AL,T	
D670	0403-000509	DIODE-ZENER	MTZJ5.6B,5.6V,5.45-5.73V,500mW	
D702	0402-000546	DIODE-RECTIFIER	TVR10G,400V,1.0A,DO-41,TP	
D703	0402-001111	DIODE-RECTIFIER	1N5397GP,600V,1.5A,DO-204AC,TP	
D704	0401-000005	DIODE-SWITCHING	1N4148,100V,200mA,DO-35,TP	
EY301	6042-000001	EYELET	ID2.2,OD2.7,L3.1,SN,BSS3-E/EH	SNA
EY302	6042-000001	EYELET	ID2.2,OD2.7,L3.1,SN,BSS3-E/EH	SNA
EY401	6042-000001	EYELET	ID2.2,OD2.7,L3.1,SN,BSS3-E/EH	SNA
EY402	6042-000001	EYELET	ID2.2,OD2.7,L3.1,SN,BSS3-E/EH	SNA
EY403	6042-000001	EYELET	ID2.2,OD2.7,L3.1,SN,BSS3-E/EH	SNA
EY404	6042-000001	EYELET	ID2.2,OD2.7,L3.1,SN,BSS3-E/EH	SNA
EY405	6042-000002	EYELET	ID1.5,OD2,L3.1,SN,BSS3-E/EH	SNA
EY408	6042-000002	EYELET	ID1.5,OD2,L3.1,SN,BSS3-E/EH	SNA
EY409	6042-000002	EYELET	ID1.5,OD2,L3.1,SN,BSS3-E/EH	SNA
EY410	6042-000002	EYELET	ID1.5,OD2,L3.1,SN,BSS3-E/EH	SNA
EY411	6042-000002	EYELET	ID1.5,OD2,L3.1,SN,BSS3-E/EH	SNA
EY412	6042-000001	EYELET	ID2.2,OD2.7,L3.1,SN,BSS3-E/EH	SNA
EY413	6042-000001	EYELET	ID2.2,OD2.7,L3.1,SN,BSS3-E/EH	SNA
EY415	6042-000002	EYELET	ID1.5,OD2,L3.1,SN,BSS3-E/EH	SNA
EY420	6042-000002	EYELET	ID1.5,OD2,L3.1,SN,BSS3-E/EH	SNA
EY440	6042-000002	EYELET	ID1.5,OD2,L3.1,SN,BSS3-E/EH	△ SNA
EY441	6042-000002	EYELET	ID1.5,OD2,L3.1,SN,BSS3-E/EH	SNA
EY501	6042-000001	EYELET	ID2.2,OD2.7,L3.1,SN,BSS3-E/EH	SNA
EY502	6042-000001	EYELET	ID2.2,OD2.7,L3.1,SN,BSS3-E/EH	SNA
EY503	6042-000002	EYELET	ID1.5,OD2,L3.1,SN,BSS3-E/EH	SNA
EY504	6042-000002	EYELET	ID1.5,OD2,L3.1,SN,BSS3-E/EH	SNA
EY505	6042-000002	EYELET	ID1.5,OD2,L3.1,SN,BSS3-E/EH	SNA
EY506	6042-000002	EYELET	ID1.5,OD2,L3.1,SN,BSS3-E/EH	SNA
EY507	6042-000002	EYELET	ID1.5,OD2,L3.1,SN,BSS3-E/EH	SNA
EY508	6042-000002	EYELET	ID1.5,OD2,L3.1,SN,BSS3-E/EH	SNA
EY509	6042-000002	EYELET	ID1.5,OD2,L3.1,SN,BSS3-E/EH	SNA
EY510	6042-000002	EYELET	ID1.5,OD2,L3.1,SN,BSS3-E/EH	SNA
EY511	6042-000002	EYELET	ID1.5,OD2,L3.1,SN,BSS3-E/EH	SNA
EY512	6042-000002	EYELET	ID1.5,OD2,L3.1,SN,BSS3-E/EH	△ SNA
EY550	6042-000002	EYELET	ID1.5,OD2,L3.1,SN,BSS3-E/EH	SNA
EY599	6042-000001	EYELET	ID2.2,OD2.7,L3.1,SN,BSS3-E/EH	SNA

Loc. No.	Code No.	Description	Specification	Remarks
EY6	6042-000001	EYELET	ID2.2,0D2.7,L3.1,SN,BSS3-E/EH	SNA
EY601	6042-000002	EYELET	ID1.5,0D2,L3.1,SN,BSS3-E/EH	SNA
EY602	6042-000002	EYELET	ID1.5,0D2,L3.1,SN,BSS3-E/EH	SNA
EY603	6042-000001	EYELET	ID2.2,0D2.7,L3.1,SN,BSS3-E/EH	SNA
EY604	6042-000001	EYELET	ID2.2,0D2.7,L3.1,SN,BSS3-E/EH	SNA
EY607	6042-000001	EYELET	ID2.2,0D2.7,L3.1,SN,BSS3-E/EH	SNA
EY608	6042-000001	EYELET	ID2.2,0D2.7,L3.1,SN,BSS3-E/EH	SNA
EY609	6042-000001	EYELET	ID2.2,0D2.7,L3.1,SN,BSS3-E/EH	SNA
EY61	6042-000001	EYELET	ID2.2,0D2.7,L3.1,SN,BSS3-E/EH	SNA
EY610	6042-000001	EYELET	ID2.2,0D2.7,L3.1,SN,BSS3-E/EH	SNA
EY611	6042-000001	EYELET	ID2.2,0D2.7,L3.1,SN,BSS3-E/EH	SNA
EY612	6042-000001	EYELET	ID2.2,0D2.7,L3.1,SN,BSS3-E/EH	SNA
EY613	6042-000002	EYELET	ID1.5,0D2,L3.1,SN,BSS3-E/EH	SNA
EY614	6042-000002	EYELET	ID1.5,0D2,L3.1,SN,BSS3-E/EH	SNA
EY615	6042-000002	EYELET	ID1.5,0D2,L3.1,SN,BSS3-E/EH	SNA
EY616	6042-000002	EYELET	ID1.5,0D2,L3.1,SN,BSS3-E/EH	SNA
EY703	6042-000002	EYELET	ID1.5,0D2,L3.1,SN,BSS3-E/EH	SNA
EY704	6042-000002	EYELET	ID1.5,0D2,L3.1,SN,BSS3-E/EH	SNA
EY705	6042-000002	EYELET	ID1.5,0D2,L3.1,SN,BSS3-E/EH	SNA
FH601	3602-000001	FUSE-CLIP	-,30mohm	SNA
IC280	1103-001150	IC-EEPROM	524C80D81,8KBit,DIP,8P,300MIL,10mS,5V,10%,PLASTIC,-25to+70C,10uA,CMOS,ST	
IC402	1203-001099	IC-PWM CONTROLLER	3843,DIP,8P,250MIL,PLASTIC,30V	
IC501	1203-000610	IC-PWM CONTROLLER	494,DIP,16P,300MIL,PLASTIC,40V,1W,0TO+70C,250MA,4.75/5.25V,ST	
IC621	1203-000002	IC-POSI.ADJUST REG.	431,TO-92,3P,-,PLASTIC,2.44/2.	△
IC701	1203-002081	IC-PWM CONTROLLER	33260,DIP,8P,300MIL,PLASTIC,-,600mW,-40to+105C,-,ST	
JP104	BH39-40305U	CBF HARNESS	52MM,AWG22(0.6PI),-,AWG22(0.	
JP106	BH39-40305U	CBF HARNESS	52MM,AWG22(0.6PI),-,AWG22(0.	
JP113	BH39-40305U	CBF HARNESS	52MM,AWG22(0.6PI),-,AWG22(0.	
JP114	BH39-40305U	CBF HARNESS	52MM,AWG22(0.6PI),-,AWG22(0.	
JP116	BH39-40305U	CBF HARNESS	52MM,AWG22(0.6PI),-,AWG22(0.	
JP150	BH39-40305U	CBF HARNESS	52MM,AWG22(0.6PI),-,AWG22(0.	
JP151	BH39-40305U	CBF HARNESS	52MM,AWG22(0.6PI),-,AWG22(0.	
JP153	BH39-40305U	CBF HARNESS	52MM,AWG22(0.6PI),-,AWG22(0.	
JP154	BH39-40305U	CBF HARNESS	52MM,AWG22(0.6PI),-,AWG22(0.	
JP158	BH39-40305U	CBF HARNESS	52MM,AWG22(0.6PI),-,AWG22(0.	
JP159	BH39-40305U	CBF HARNESS	52MM,AWG22(0.6PI),-,AWG22(0.	
JP167	BH39-40305U	CBF HARNESS	52MM,AWG22(0.6PI),-,AWG22(0.	
JP178	BH39-40305U	CBF HARNESS	52MM,AWG22(0.6PI),-,AWG22(0.	
JP184	BH39-40305U	CBF HARNESS	52MM,AWG22(0.6PI),-,AWG22(0.	
JP186	BH39-40305U	CBF HARNESS	52MM,AWG22(0.6PI),-,AWG22(0.	
JP187	BH39-40305U	CBF HARNESS	52MM,AWG22(0.6PI),-,AWG22(0.	
JP189	BH39-40305U	CBF HARNESS	52MM,AWG22(0.6PI),-,AWG22(0.	
JP190	BH39-40305U	CBF HARNESS	52MM,AWG22(0.6PI),-,AWG22(0.	
JP191	BH39-40305U	CBF HARNESS	52MM,AWG22(0.6PI),-,AWG22(0.	
JP192	BH39-40305U	CBF HARNESS	52MM,AWG22(0.6PI),-,AWG22(0.	
JP193	BH39-40305U	CBF HARNESS	52MM,AWG22(0.6PI),-,AWG22(0.	
JP194	BH39-40305U	CBF HARNESS	52MM,AWG22(0.6PI),-,AWG22(0.	
JP197	BH39-40305U	CBF HARNESS	52MM,AWG22(0.6PI),-,AWG22(0.	
JP198	BH39-40305U	CBF HARNESS	52MM,AWG22(0.6PI),-,AWG22(0.	
JP204	BH39-40305U	CBF HARNESS	52MM,AWG22(0.6PI),-,AWG22(0.	
JP210	BH39-40305U	CBF HARNESS	52MM,AWG22(0.6PI),-,AWG22(0.	
JP212	BH39-40305U	CBF HARNESS	52MM,AWG22(0.6PI),-,AWG22(0.	
JP213	BH39-40305U	CBF HARNESS	52MM,AWG22(0.6PI),-,AWG22(0.	
JP216	BH39-40305U	CBF HARNESS	52MM,AWG22(0.6PI),-,AWG22(0.	
JP227	BH39-40305U	CBF HARNESS	52MM,AWG22(0.6PI),-,AWG22(0.	

7 Electrical Parts List

[illegible]

[illegible]

7 Electrical Parts List

Loc. No.	Code No.	Description	Specification	Remarks
JP659	BH39-40305U	CBF HARNESS	52MM,AWG22(0.6PI),-,-,AWG22(0.	
JP660	BH39-40305U	CBF HARNESS	52MM,AWG22(0.6PI),-,-,AWG22(0.	
JP661	BH39-40305U	CBF HARNESS	52MM,AWG22(0.6PI),-,-,AWG22(0.	
JP662	BH39-40305U	CBF HARNESS	52MM,AWG22(0.6PI),-,-,AWG22(0.	
JP663	BH39-40305U	CBF HARNESS	52MM,AWG22(0.6PI),-,-,AWG22(0.	
JP664	BH39-40305U	CBF HARNESS	52MM,AWG22(0.6PI),-,-,AWG22(0.	
JP665	BH39-40305U	CBF HARNESS	52MM,AWG22(0.6PI),-,-,AWG22(0.	
JP666	BH39-40305U	CBF HARNESS	52MM,AWG22(0.6PI),-,-,AWG22(0.	
JP670	BH39-40305U	CBF HARNESS	52MM,AWG22(0.6PI),-,-,AWG22(0.	
JP678	BH39-40305U	CBF HARNESS	52MM,AWG22(0.6PI),-,-,AWG22(0.	
JP680	BH39-40305U	CBF HARNESS	52MM,AWG22(0.6PI),-,-,AWG22(0.	
JP681	BH39-40305U	CBF HARNESS	52MM,AWG22(0.6PI),-,-,AWG22(0.	
JP682	BH39-40305U	CBF HARNESS	52MM,AWG22(0.6PI),-,-,AWG22(0.	
JP683	BH39-40305U	CBF HARNESS	52MM,AWG22(0.6PI),-,-,AWG22(0.	
JP684	BH39-40305U	CBF HARNESS	52MM,AWG22(0.6PI),-,-,AWG22(0.	
JP685	BH39-40305U	CBF HARNESS	52MM,AWG22(0.6PI),-,-,AWG22(0.	
JP686	BH39-40305U	CBF HARNESS	52MM,AWG22(0.6PI),-,-,AWG22(0.	
JP687	BH39-40305U	CBF HARNESS	52MM,AWG22(0.6PI),-,-,AWG22(0.	
JP688	BH39-40305U	CBF HARNESS	52MM,AWG22(0.6PI),-,-,AWG22(0.	
JP691	BH39-40305U	CBF HARNESS	52MM,AWG22(0.6PI),-,-,AWG22(0.	
JP695	BH39-40305U	CBF HARNESS	52MM,AWG22(0.6PI),-,-,AWG22(0.	
JP697	BH39-40305U	CBF HARNESS	52MM,AWG22(0.6PI),-,-,AWG22(0.	
JP699	BH39-40305U	CBF HARNESS	52MM,AWG22(0.6PI),-,-,AWG22(0.	
JP701	BH39-40305U	CBF HARNESS	52MM,AWG22(0.6PI),-,-,AWG22(0.	
JP702	BH39-40305U	CBF HARNESS	52MM,AWG22(0.6PI),-,-,AWG22(0.	
JP703	BH39-40305U	CBF HARNESS	52MM,AWG22(0.6PI),-,-,AWG22(0.	
JP705	BH39-40305U	CBF HARNESS	52MM,AWG22(0.6PI),-,-,AWG22(0.	
JP706	BH39-40305U	CBF HARNESS	52MM,AWG22(0.6PI),-,-,AWG22(0.	
JP713	BH39-40305U	CBF HARNESS	52MM,AWG22(0.6PI),-,-,AWG22(0.	
JP714	BH39-40305U	CBF HARNESS	52MM,AWG22(0.6PI),-,-,AWG22(0.	
JP715	BH39-40305U	CBF HARNESS	52MM,AWG22(0.6PI),-,-,AWG22(0.	
JP716	BH39-40305U	CBF HARNESS	52MM,AWG22(0.6PI),-,-,AWG22(0.	
JP718	BH39-40305U	CBF HARNESS	52MM,AWG22(0.6PI),-,-,AWG22(0.	
JP719	BH39-40305U	CBF HARNESS	52MM,AWG22(0.6PI),-,-,AWG22(0.	
JP720	BH39-40305U	CBF HARNESS	52MM,AWG22(0.6PI),-,-,AWG22(0.	
JP722	BH39-40305U	CBF HARNESS	52MM,AWG22(0.6PI),-,-,AWG22(0.	
L400	2701-000179	INDUCTOR-AXIAL	33uH,10%,4.2x9.8mm	
L501	2701-000179	INDUCTOR-AXIAL	33uH,10%,4.2x9.8mm	
L502	2701-000187	INDUCTOR-AXIAL	4.7uH,10%,4.2x9.8mm	
MP1.0	BH41-00201A	PCB MAIN	CEPHEUS_MAIN,FR1,1,-,1.6T,247*330,-,1,21 MAIN,-	
Q250	0501-000586	TR-SMALL SIGNAL	KSC945,NPN,250mW,TO-92,TP,120-240	
Q251	0501-000303	TR-SMALL SIGNAL	KSA733,PNP,250mW,TO-92,TP,120-240	
Q252	0501-000586	TR-SMALL SIGNAL	KSC945,NPN,250mW,TO-92,TP,120-240	
Q301	0501-000586	TR-SMALL SIGNAL	KSC945,NPN,250mW,TO-92,TP,120-240	
Q408	0501-000586	TR-SMALL SIGNAL	KSC945,NPN,250mW,TO-92,TP,120-240	
Q409	0501-000586	TR-SMALL SIGNAL	KSC945,NPN,250mW,TO-92,TP,120-240	
Q410	0501-000586	TR-SMALL SIGNAL	KSC945,NPN,250mW,TO-92,TP,120-240	
Q411	0501-000586	TR-SMALL SIGNAL	KSC945,NPN,250mW,TO-92,TP,120-240	
Q412	0501-000586	TR-SMALL SIGNAL	KSC945,NPN,250mW,TO-92,TP,120-240	
Q450	0501-000303	TR-SMALL SIGNAL	KSA733,PNP,250mW,TO-92,TP,120-240	
Q451	0501-000586	TR-SMALL SIGNAL	KSC945,NPN,250mW,TO-92,TP,120-240	
Q452	0501-000586	TR-SMALL SIGNAL	KSC945,NPN,250mW,TO-92,TP,120-240	
Q453	0501-000303	TR-SMALL SIGNAL	KSA733,PNP,250mW,TO-92,TP,120-240	
Q502	0501-000122	TR-SMALL SIGNAL	2N3904,NPN,625mW,TO-92,TP,100-300	
Q503	0501-000581	TR-SMALL SIGNAL	2N3906,PNP,625mW,TO-92,TP,100-300	

Loc. No.	Code No.	Description	Specification	Remarks
Q520	0501-000143	TR-SMALL SIGNAL	2N6520,PNP,625mW,TO-92,TP,30-200	
Q521	0501-000122	TR-SMALL SIGNAL	2N3904,NPN,625mW,TO-92,TP,100-300	
Q540	0501-000413	TR-SMALL SIGNAL	KSP44,NPN,625mW,TO-92,TP,50-200	
Q553	0501-000361	TR-SMALL SIGNAL	KSC2316-Y,NPN,900mW,TO-92L,TP,120-240	
Q601	0501-000010	TR-SMALL SIGNAL	KSC1008,NPN,800mW,TO-92,TP,120-240	
Q620	0501-000586	TR-SMALL SIGNAL	KSC945,NPN,250mW,TO-92,TP,120-240	
Q670	0501-002228	TR-SMALL SIGNAL	KTA1281,PNP,1000mW,TO-92L,TP,120-240	
Q671	0501-000586	TR-SMALL SIGNAL	KSC945,NPN,250mW,TO-92,TP,120-240	
Q672	0501-002228	TR-SMALL SIGNAL	KTA1281,PNP,1000mW,TO-92L,TP,120-240	
R200	2001-000591	R-CARBON	3.3KOHM,5%,1/8W,AA,TP,1.8X3.2MM	
R203	2001-000356	R-CARBON	150KOHM,5%,1/8W,AA,TP,1.8X3.2MM	
R204	2001-000281	R-CARBON	1000HM,5%,1/8W,AA,TP,1.8X3.2MM	
R205	2001-000281	R-CARBON	1000HM,5%,1/8W,AA,TP,1.8X3.2MM	
R206	2001-000739	R-CARBON	4.7MOHM,5%,1/8W,AA,TP,1.8X3.2MM	
R207	2001-000869	R-CARBON	560HM,5%,1/8W,AA,TP,1.8X3.2MM	
R208	2001-000869	R-CARBON	560HM,5%,1/8W,AA,TP,1.8X3.2MM	
R209	2001-000591	R-CARBON	3.3KOHM,5%,1/8W,AA,TP,1.8X3.2MM	
R210	2001-000281	R-CARBON	1000HM,5%,1/8W,AA,TP,1.8X3.2MM	
R211	2001-000591	R-CARBON	3.3KOHM,5%,1/8W,AA,TP,1.8X3.2MM	
R215	2001-000734	R-CARBON	4.7KOHM,5%,1/8W,AA,TP,1.8X3.2MM	
R216	2001-000734	R-CARBON	4.7KOHM,5%,1/8W,AA,TP,1.8X3.2MM	
R218	2001-000613	R-CARBON	3.9KOHM,5%,1/8W,AA,TP,1.8X3.2MM	
R219	2001-000591	R-CARBON	3.3KOHM,5%,1/8W,AA,TP,1.8X3.2MM	
R220	2001-000331	R-CARBON	12KOHM,5%,1/8W,AA,TP,1.8X3.2MM	
R221	2001-000290	R-CARBON	10KOHM,5%,1/8W,AA,TP,1.8X3.2MM	
R222	2001-000613	R-CARBON	3.9KOHM,5%,1/8W,AA,TP,1.8X3.2MM	
R225	2001-000435	R-CARBON	1MOHM,5%,1/8W,AA,TP,1.8X3.2MM	
R226	2001-000281	R-CARBON	1000HM,5%,1/8W,AA,TP,1.8X3.2MM	
R227	2001-000281	R-CARBON	1000HM,5%,1/8W,AA,TP,1.8X3.2MM	
R228	2001-000490	R-CARBON	2000HM,5%,1/8W,AA,TP,1.8X3.2MM	
R229	2001-000429	R-CARBON	1KOHM,5%,1/8W,AA,TP,1.8X3.2MM	
R230	2001-000490	R-CARBON	2000HM,5%,1/8W,AA,TP,1.8X3.2MM	
R231	2001-000429	R-CARBON	1KOHM,5%,1/8W,AA,TP,1.8X3.2MM	
R233	2001-000734	R-CARBON	4.7KOHM,5%,1/8W,AA,TP,1.8X3.2MM	
R236	2001-000281	R-CARBON	1000HM,5%,1/8W,AA,TP,1.8X3.2MM	
R237	2001-000281	R-CARBON	1000HM,5%,1/8W,AA,TP,1.8X3.2MM	
R238	2001-000472	R-CARBON	2.7KOHM,5%,1/8W,AA,TP,1.8X3.2MM	
R239	2001-000281	R-CARBON	1000HM,5%,1/8W,AA,TP,1.8X3.2MM	
R240	2001-000472	R-CARBON	2.7KOHM,5%,1/8W,AA,TP,1.8X3.2MM	
R242	2001-000008	R-CARBON	15KOHM,5%,1/8W,AA,TP,1.8X3.2MM	
R243	2001-000008	R-CARBON	15KOHM,5%,1/8W,AA,TP,1.8X3.2MM	
R250	2001-000281	R-CARBON	1000HM,5%,1/8W,AA,TP,1.8X3.2MM	
R251	2001-000281	R-CARBON	1000HM,5%,1/8W,AA,TP,1.8X3.2MM	
R252	2001-000563	R-CARBON	27KOHM,5%,1/8W,AA,TP,1.8X3.2MM	
R253	2004-001118	R-METAL	5Kohm,1%,1/4W,AA,TP,2.4x6.4mm	
R254	2001-000429	R-CARBON	1KOHM,5%,1/8W,AA,TP,1.8X3.2MM	
R255	2001-000449	R-CARBON	2.2KOHM,5%,1/8W,AA,TP,1.8X3.2MM	
R256	2004-004367	R-METAL	90Kohm,1%,1/4W,AA,TP,6.2x2.6mm	
R261	2001-000290	R-CARBON	10KOHM,5%,1/8W,AA,TP,1.8X3.2MM	
R264	2001-000319	R-CARBON	120KOHM,5%,1/8W,AA,TP,1.8X3.2MM	
R265	2001-000221	R-CARBON	1.2KOHM,5%,1/8W,AA,TP,1.8X3.2MM	
R266	2001-000869	R-CARBON	560HM,5%,1/8W,AA,TP,1.8X3.2MM	
R267	2001-000869	R-CARBON	560HM,5%,1/8W,AA,TP,1.8X3.2MM	
R268	2001-000734	R-CARBON	4.7KOHM,5%,1/8W,AA,TP,1.8X3.2MM	
R269	2001-000281	R-CARBON	1000HM,5%,1/8W,AA,TP,1.8X3.2MM	

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7 Electrical Parts List

Loc. No.	Code No.	Description	Specification	Remarks
R270	2001-000281	R-CARBON	1000HM,5%,1/8W,AA,TP,1.8X3.2MM	
R271	2001-000281	R-CARBON	1000HM,5%,1/8W,AA,TP,1.8X3.2MM	
R272	2001-000241	R-CARBON	1.5KOHM,5%,1/8W,AA,TP,1.8X3.2MM	
R273	2001-000290	R-CARBON	10KOHM,5%,1/8W,AA,TP,1.8X3.2MM	
R274	2001-000857	R-CARBON	560OHM,5%,1/8W,AA,TP,1.8X3.2MM	
R278	2001-000281	R-CARBON	1000HM,5%,1/8W,AA,TP,1.8X3.2MM	
R280	2001-000281	R-CARBON	1000HM,5%,1/8W,AA,TP,1.8X3.2MM	
R281	2001-000281	R-CARBON	1000HM,5%,1/8W,AA,TP,1.8X3.2MM	
R282	2001-001050	R-CARBON(S)	1.5KOHM,5%,1/2W,AA,TP,2.4X6.4MM	
R284	2001-000281	R-CARBON	1000HM,5%,1/8W,AA,TP,1.8X3.2MM	
R285	2001-000273	R-CARBON	100KOHM,5%,1/8W,AA,TP,1.8X3.2MM	
R286	2001-000522	R-CARBON	22KOHM,5%,1/8W,AA,TP,1.8X3.2MM	
R301	2004-000344	R-METAL	15Kohm,1%,1/4W,AA,TP,2.4x6.4mm	
R302	2004-000001	R-METAL	6.2Kohm,1%,1/4W,AA,TP,2.4x6.4mm	
R303	2005-001064	R-WIRE WOUND	0.90HM,5%,2W,AA,TP,3.8X11MM	
R304	2001-000037	R-CARBON(S)	330OHM,5%,1/2W,AA,TP,2.4X6.4MM	
R305	2001-000105	R-CARBON	1.5KOHM,5%,1/4W,AA,TP,2.4X6.4MM	
R306	2001-000016	R-CARBON(S)	10HM,5%,1/2W,AA,TP,2.4X6.4MM	
R307	2001-000281	R-CARBON	1000HM,5%,1/8W,AA,TP,1.8X3.2MM	
R308	2001-000290	R-CARBON	10KOHM,5%,1/8W,AA,TP,1.8X3.2MM	
R309	2001-000977	R-CARBON	8.2KOHM,5%,1/8W,AA,TP,1.8X3.2MM	
R310	2001-000591	R-CARBON	3.3KOHM,5%,1/8W,AA,TP,1.8X3.2MM	
R311	2001-000429	R-CARBON	1KOHM,5%,1/8W,AA,TP,1.8X3.2MM	
R312	2008-000114	R-FUSIBLE	1.2ohm,5%,1/2W,AA,TP,3.5x9.4mm	
R313	2004-001254	R-METAL	8.2Kohm,1%,1/4W,AA,TP,2.4x6.4mm	
R314	2004-000679	R-METAL	2Kohm,1%,1/4W,AA,TP,2.4x6.4mm	
R315	2001-000111	R-CARBON	150OHM,5%,1/4W,AA,TP,2.4X6.4MM	
R316	2008-000114	R-FUSIBLE	1.2ohm,5%,1/2W,AA,TP,3.5x9.4mm	
R402	2001-000044	R-CARBON	1.2KOHM,5%,1/4W,AA,TP,2.4X6.4MM	
R404	2001-000515	R-CARBON	220OHM,5%,1/8W,AA,TP,1.8X3.2MM	
R405	2001-000037	R-CARBON(S)	330OHM,5%,1/2W,AA,TP,2.4X6.4MM	
R406	2001-000019	R-CARBON(S)	100HM,5%,1/2W,AA,TP,2.4X6.4MM	
R408	2003-000473	R-METAL OXIDE(S)	10ohm,5%,3W,AA,TP,6x16mm	
R409	2003-000423	R-METAL OXIDE(S)	1.2ohm,5%,3W,AA,TP,6x16mm	
R410	2003-000502	R-METAL OXIDE(S)	150ohm,5%,2W,AA,TP,4x12mm	
R412	2001-001153	R-CARBON(S)	47OHM,5%,1/2W,AA,TP,2.4X6.4MM	
R413	2001-001153	R-CARBON(S)	47OHM,5%,1/2W,AA,TP,2.4X6.4MM	
R414	2003-000450	R-METAL OXIDE(S)	100Kohm,5%,3W,AA,TP,6x16mm	
R420	2001-000429	R-CARBON	1KOHM,5%,1/8W,AA,TP,1.8X3.2MM	
R421	2001-000429	R-CARBON	1KOHM,5%,1/8W,AA,TP,1.8X3.2MM	
R422	2001-000429	R-CARBON	1KOHM,5%,1/8W,AA,TP,1.8X3.2MM	
R423	2001-000429	R-CARBON	1KOHM,5%,1/8W,AA,TP,1.8X3.2MM	
R424	2001-000411	R-CARBON	18KOHM,5%,1/8W,AA,TP,1.8X3.2MM	
R425	2001-000411	R-CARBON	18KOHM,5%,1/8W,AA,TP,1.8X3.2MM	
R426	2001-000411	R-CARBON	18KOHM,5%,1/8W,AA,TP,1.8X3.2MM	
R427	2001-000411	R-CARBON	18KOHM,5%,1/8W,AA,TP,1.8X3.2MM	
R428	2001-000411	R-CARBON	18KOHM,5%,1/8W,AA,TP,1.8X3.2MM	
R429	2001-000221	R-CARBON	1.2KOHM,5%,1/8W,AA,TP,1.8X3.2MM	
R430	2001-000221	R-CARBON	1.2KOHM,5%,1/8W,AA,TP,1.8X3.2MM	
R431	2001-000221	R-CARBON	1.2KOHM,5%,1/8W,AA,TP,1.8X3.2MM	
R432	2001-000221	R-CARBON	1.2KOHM,5%,1/8W,AA,TP,1.8X3.2MM	
R433	2001-000221	R-CARBON	1.2KOHM,5%,1/8W,AA,TP,1.8X3.2MM	
R434	2001-000429	R-CARBON	1KOHM,5%,1/8W,AA,TP,1.8X3.2MM	
R440	2001-000022	R-CARBON(S)	330HM,5%,1/2W,AA,TP,2.4X6.4MM	
R441	2003-000661	R-METAL OXIDE(S)	33ohm,5%,2W,AA,TP,4x12mm	

Loc. No.	Code No.	Description	Specification	Remarks
R450	2001-000011	R-CARBON	75KOHM,5%,1/8W,AA,TP,1.8X3.2MM	
R451	2001-000017	R-CARBON	4.7OHM,5%,1/4W,AA,TP,2.4X6.4MM	
R452	2001-000645	R-CARBON	330KOHM,5%,1/8W,AA,TP,1.8X3.2MM	
R453	2001-000411	R-CARBON	18KOHM,5%,1/8W,AA,TP,1.8X3.2MM	
R454	2001-000241	R-CARBON	1.5KOHM,5%,1/8W,AA,TP,1.8X3.2MM	
R455	2001-000331	R-CARBON	12KOHM,5%,1/8W,AA,TP,1.8X3.2MM	
R456	2001-000011	R-CARBON	75KOHM,5%,1/8W,AA,TP,1.8X3.2MM	
R457	2001-000290	R-CARBON	10KOHM,5%,1/8W,AA,TP,1.8X3.2MM	
R459	2004-001329	R-METAL	9.1Kohm,1%,1/4W,AA,TP,2.4x6.4m	
R460	2004-000284	R-METAL	12Kohm,1%,1/4W,AA,TP,2.4x6.4mm	
R461	2001-000055	R-CARBON	4.7KOHM,5%,1/4W,AA,TP,2.4X6.4MM	
R462	2004-000412	R-METAL	18Kohm,1%,1/4W,AA,TP,2.4x6.4mm	
R463	2001-000042	R-CARBON	1KOHM,5%,1/4W,AA,TP,2.4X6.4MM	
R464	2001-000042	R-CARBON	1KOHM,5%,1/4W,AA,TP,2.4X6.4MM	
R465	2001-000028	R-CARBON(S)	100OHM,5%,1/2W,AA,TP,2.4X6.4MM	
R466	2001-000050	R-CARBON	2.7KOHM,5%,1/4W,AA,TP,2.4X6.4MM	
R467	2008-000140	R-FUSIBLE	2.2ohm,5%,1/2W,AA,TP,3.5x9.4mm	
R468	2001-000734	R-CARBON	4.7KOHM,5%,1/8W,AA,TP,1.8X3.2MM	
R490	2004-000412	R-METAL	18Kohm,1%,1/4W,AA,TP,2.4x6.4mm	
R501	2001-000241	R-CARBON	1.5KOHM,5%,1/8W,AA,TP,1.8X3.2MM	
R502	2001-000331	R-CARBON	12KOHM,5%,1/8W,AA,TP,1.8X3.2MM	
R503	2001-000812	R-CARBON	5.6KOHM,5%,1/8W,AA,TP,1.8X3.2MM	
R504	2001-000689	R-CARBON	390KOHM,5%,1/8W,AA,TP,1.8X3.2MM	
R505	2001-000977	R-CARBON	8.2KOHM,5%,1/8W,AA,TP,1.8X3.2MM	
R506	2001-000800	R-CARBON	5.1KOHM,5%,1/8W,AA,TP,1.8X3.2MM	
R507	2001-000429	R-CARBON	1KOHM,5%,1/8W,AA,TP,1.8X3.2MM	
R508	2001-000241	R-CARBON	1.5KOHM,5%,1/8W,AA,TP,1.8X3.2MM	
R509	2001-000800	R-CARBON	5.1KOHM,5%,1/8W,AA,TP,1.8X3.2MM	
R510	2001-000780	R-CARBON	470OHM,5%,1/8W,AA,TP,1.8X3.2MM	
R511	2001-000018	R-CARBON	6.8OHM,5%,1/4W,AA,TP,2.4X6.4MM	
R512	2005-000210	R-WIRE WOUND	0.33ohm,5%,1W,AC,BK,4.5x11mm	
R515	2001-000073	R-CARBON	33KOHM,5%,1/4W,AA,TP,2.4X6.4MM	
R520	2001-000962	R-CARBON	75KOHM,5%,1/4W,AA,TP,2.4X6.4MM	
R521	2001-000546	R-CARBON	270KOHM,5%,1/4W,AA,TP,2.4X6.4MM	
R522	2004-000327	R-METAL	150Kohm,1%,1/4W,AA,TP,2.4x6.4m	
R523	2001-000096	R-CARBON(S)	1MOHM,5%,1/2W,AA,TP,2.4X6.4MM	
R524	2004-001254	R-METAL	8.2Kohm,1%,1/4W,AA,TP,2.4x6.4m	△
R525	2004-000123	R-METAL	1.2Kohm,1%,1/4W,AA,TP,2.4x6.4m	△
R526	2001-000290	R-CARBON	10KOHM,5%,1/8W,AA,TP,1.8X3.2MM	
R527	2001-000878	R-CARBON	6.2KOHM,5%,1/8W,AA,TP,1.8X3.2MM	
R531	2004-000964	R-METAL	470Kohm,1%,1/4W,AA,TP,2.4x6.4m	△
R532	2004-000643	R-METAL	270Kohm,1%,1/4W,AA,TP,2.4x6.4m	△
R541	2001-000114	R-CARBON(S)	180KOHM,5%,1/2W,AA,TP,2.4X6.4MM	
R542	2001-000114	R-CARBON(S)	180KOHM,5%,1/2W,AA,TP,2.4X6.4MM	
R543	2002-001079	R-COMPOSITION	470Kohm,5%,1/2W,AA,TP,4x10mm	
R545	2001-000331	R-CARBON	12KOHM,5%,1/8W,AA,TP,1.8X3.2MM	
R546	2001-000429	R-CARBON	1KOHM,5%,1/8W,AA,TP,1.8X3.2MM	
R547	2001-000429	R-CARBON	1KOHM,5%,1/8W,AA,TP,1.8X3.2MM	
R550	2002-001079	R-COMPOSITION	470Kohm,5%,1/2W,AA,TP,4x10mm	
R551	2001-000723	R-CARBON	4.3KOHM,5%,1/8W,AA,TP,1.8X3.2MM	
R552	2001-000319	R-CARBON	120KOHM,5%,1/8W,AA,TP,1.8X3.2MM	
R553	2001-000105	R-CARBON	1.5KOHM,5%,1/4W,AA,TP,2.4X6.4MM	
R555	2001-001144	R-CARBON(S)	4.7KOHM,5%,1/2W,AA,TP,2.4X6.4MM	
R556	2001-001153	R-CARBON(S)	47OHM,5%,1/2W,AA,TP,2.4X6.4MM	
R557	2003-000459	R-METAL OXIDE(S)	100ohm,5%,3W,AA,TP,6x16mm	

Loc. No.	Code No.	Description	Specification	Remarks
R558	2003-000008	R-METAL OXIDE(S)	100ohm,5%,1W,AA,TP,3.3x9mm	
R560	2001-000800	R-CARBON	5.1KOHM,5%,1/8W,AA,TP,1.8X3.2MM	
R561	2001-000331	R-CARBON	12KOHM,5%,1/8W,AA,TP,1.8X3.2MM	
R596	BH39-40305U	CBF HARNESS	52MM,AWG22(0.6PI),-,-,AWG22(0.	
R597	2002-001073	R-COMPOSITION	15Mohm,5%,1/2W,AA,TP,4.0x10mm	
R598	2001-000395	R-CARBON	180KOHM,5%,1/4W,AA,TP,2.4X6.4MM	
R599	2001-001125	R-CARBON(S)	300KOHM,5%,1/2W,AA,TP,2.4X6.4MM	△
R601	2001-000107	R-CARBON(S)	150KOHM,5%,1/2W,AA,TP,2.4X6.4MM	△
R602	2001-000107	R-CARBON(S)	150KOHM,5%,1/2W,AA,TP,2.4X6.4MM	△
R603	2001-000022	R-CARBON(S)	330HM,5%,1/2W,AA,TP,2.4X6.4MM	
R604	2001-000290	R-CARBON	10KOHM,5%,1/8W,AA,TP,1.8X3.2MM	
R605	2001-000044	R-CARBON	1.2KOHM,5%,1/4W,AA,TP,2.4X6.4MM	
R606	2001-000085	R-CARBON(S)	100KOHM,5%,1/2W,AA,TP,2.4X6.4MM	
R607	2001-000087	R-CARBON(S)	120KOHM,5%,1/2W,AA,TP,2.4X6.4MM	
R609	2001-001048	R-CARBON(S)	1.20HM,5%,1/2W,AA,TP,2.4X6.4MM	△
R620	2001-000552	R-CARBON	2700HM,5%,1/4W,AA,TP,2.4X6.4MM	
R621	2001-000003	R-CARBON	330ohm,5%,1/8W,AA,TP,1.8x3.2mm	
R622	2001-000241	R-CARBON	1.5KOHM,5%,1/8W,AA,TP,1.8X3.2MM	
R623	2001-000429	R-CARBON	1KOHM,5%,1/8W,AA,TP,1.8X3.2MM	
R624	2001-000034	R-CARBON	2200HM,5%,1/4W,AA,TP,2.4X6.4MM	
R625	2001-000508	R-CARBON	220KOHM,5%,1/8W,AA,TP,1.8X3.2MM	
R626	2004-000679	R-METAL	2Kohm,1%,1/4W,AA,TP,2.4x6.4mm	△
R627	2004-000523	R-METAL	200ohm,1%,1/4W,AA,TP,2.4x6.4mm	△
R628	2002-001082	R-COMPOSITION	180KOHM,2%,1W,AA,TP,4X12MM	
R629	2001-000890	R-CARBON	6.8KOHM,5%,1/8W,AA,TP,1.8X3.2MM	
R630	2001-000577	R-CARBON	2KOHM,5%,1/8W,AA,TP,1.8X3.2MM	
R631	2001-000577	R-CARBON	2KOHM,5%,1/8W,AA,TP,1.8X3.2MM	
R644	2001-001164	R-CARBON(S)	56KOHM,5%,1/2W,AA,TP,2.4X6.4MM	
R649	2002-001079	R-COMPOSITION	470Kohm,5%,1/2W,AA,TP,4x10mm	
R651	2001-000734	R-CARBON	4.7KOHM,5%,1/8W,AA,TP,1.8X3.2MM	
R655	2002-001079	R-COMPOSITION	470Kohm,5%,1/2W,AA,TP,4x10mm	
R656	2001-000028	R-CARBON(S)	1000HM,5%,1/2W,AA,TP,2.4X6.4MM	
R668	2001-000958	R-CARBON	7500HM,5%,1/8W,AA,TP,1.8X3.2MM	
R670	2002-001049	R-COMPOSITION	240Kohm,5%,1/2W,AA,TP,3.9x9mm	
R671	2002-001049	R-COMPOSITION	240Kohm,5%,1/2W,AA,TP,3.9x9mm	
R672	2001-000786	R-CARBON	47KOHM,5%,1/8W,AA,TP,1.8X3.2MM	
R673	2001-000472	R-CARBON	2.7KOHM,5%,1/8W,AA,TP,1.8X3.2MM	
R674	2001-000290	R-CARBON	10KOHM,5%,1/8W,AA,TP,1.8X3.2MM	
R675	2001-001038	R-CARBON(S)	0.560HM,5%,1/2W,AA,TP,2.4X6.4MM	
R676	2001-000449	R-CARBON	2.2KOHM,5%,1/8W,AA,TP,1.8X3.2MM	
R677	2001-000429	R-CARBON	1KOHM,5%,1/8W,AA,TP,1.8X3.2MM	
R688	BH39-40305U	CBF HARNESS	52MM,AWG22(0.6PI),-,-,AWG22(0.	
R701	2005-001170	R-WIRE WOUND,NON	0.33ohm,1%,3W,AA,TP,5.5x15mm	
R702	2004-001329	R-METAL	9.1Kohm,1%,1/4W,AA,TP,2.4x6.4m	
R703	2001-000302	R-CARBON	100HM,5%,1/8W,AA,TP,1.8X3.2MM	
R704	2001-001176	R-CARBON(S)	680KOHM,5%,1/2W,AA,TP,2.4X6.4MM	
R705	2001-001176	R-CARBON(S)	680KOHM,5%,1/2W,AA,TP,2.4X6.4MM	
R706	2001-001176	R-CARBON(S)	680KOHM,5%,1/2W,AA,TP,2.4X6.4MM	
R711	2008-000125	R-FUSIBLE	10ohm,5%,1/4W,AA,TP,2.6x6.7mm	
R712	2001-000302	R-CARBON	100HM,5%,1/8W,AA,TP,1.8X3.2MM	
R721	2001-000786	R-CARBON	47KOHM,5%,1/8W,AA,TP,1.8X3.2MM	
SK530	4715-001055	SURGE ABSORBER	1kV,+50-10%,-,-,RADIAL	SNA
X201	2801-003413	CRYSTAL-UNIT	24MHz,30ppm,28-ABQ,20pF,20ohm,	
ZD201	0403-000367	DIODE-ZENER	UZ7.5BSC,7.5V,7.33-7.64V,500mW	
ZD203	0403-000361	DIODE-ZENER	UZ6.2BSB,6.2V,5.99-6.24V,500mW	

Loc. No.	Code No.	Description	Specification	Remarks
ZD204	0403-000361	DIODE-ZENER	UZ6.2BSB,6.2V,5.99-6.24V,500mW	
ZD236	0403-001068	DIODE-ZENER	UZ4.7BSA,4.7V,4.47-4.65V,500mW	
ZD286	0403-000361	DIODE-ZENER	UZ6.2BSB,6.2V,5.99-6.24V,500mW	
ZD450	0403-000004	DIODE-ZENER	UZ12BM,12V,11.6-12.4V,500mW,DO	
ZD520	0403-001068	DIODE-ZENER	UZ4.7BSA,4.7V,4.47-4.65V,500mW	
ZD521	0403-000367	DIODE-ZENER	UZ7.5BSC,7.5V,7.33-7.64V,500mW	
ZD601	0403-000753	DIODE-ZENER	MTZJ27D,27V,26.29-27.64V,500mW	
ZD630	0403-000367	DIODE-ZENER	UZ7.5BSC,7.5V,7.33-7.64V,500mW	
ZD631	0406-001062	DIODE-TVS	P6KE200A,190/200/210V,600W,CAS	
ZD705	0403-000004	DIODE-ZENER	UZ12BM,12V,11.6-12.4V,500mW,DO	
ZD706	0403-000538	DIODE-ZENER	MTZ16C,16V,15.69-16.51V,500mW,	
HS301	BH99-00002G	ASSY HEAT/SINK	H/S V.IC,SCREW+NUT,KA2142,-,OIL SILICON	SNA
CIS	1204-001508	IC-VERTICAL DEF.	KA2142,SIP,10P,-,PLASTIC,35V,15W,-20TO+70C,ST,VERTICAL DEFLECTION	
CIS	6006-001097	SCREW-ASS'Y MACH	WSP,BH,+,M3,L8,ZPC(YEL),SWRCH18A	SNA
CIS	6021-000118	NUT-HEXAGON	1C,M3,ZPC(YEL),SM20C	SNA
CIS	BH62-00047A	HEAT SINK-V.IC	PS17NO(DELL),A1050S,T1.0,70,77,-,-,-	SNA
HS651	BH99-00011C	ASSY HEAT/SINK	HS,SPRING,78R12,33269-T,-,OIL SILICON	
CIS	1203-000165	IC-POS1.ADJUST REG.	78R12,TO-220,4P,-,PLASTIC,11.7/12.3V,1.5W,-20TO+80C,1A,-,ST	
CIS	1203-002487	IC-POS1.FIXED REG.	MC33269T-5.0,TO-220AB,3P,392MIL,PLASTIC,4.95V/5.05V,-,40TO+150C,-,1.235V/1.265V	
CIS	BH61-00004A	SPRING-TR	CDA,CDB,SUS304,-,-,-,-,TO.5,-,-,-	SNA
CIS	BH62-00045A	HEAT SINK-TR	AQ19FS,A1050S,T1.0,25,54,-,-,-	SNA
HS504	BH99-00013A	ASSY,HEAT/SINK	HS POWER,SPRING,2SK2671,-,-,OIL SILICON,-,-	SNA
CIS	BH61-00004A	SPRING-TR	CDA,CDB,SUS304,-,-,-,-,TO.5,-,-,-	SNA
CIS	BH62-00020A	HEAT SINK-TR	A1050S,T1.0,-,PG21	SNA
HS402	BH99-00029D	ASSY HEAT/SINK	HS,SPRING,2SC5584,10U150S,-,MICA,OIL SILICON	
CIS	0402-001215	DIODE-RECTIFIER	SDS10U150S,1.5KV,10A,TO-220F,ST	
CIS	0502-001142	TR-POWER	2SC5584,NPN,150W,TO-3PL,ST,7-1	
CIS	BH61-70003A	SPRING ETC	CVT4857,STS304-W1/2H,W3.8,-,L30,L30,-,TO.5,DEGRE,W3.8,STS304-W1/2H	SNA
CIS	BH62-00001A	INSULATION-MICA	CSM920B,MICA,-,-,-,-,-,POWER-TR	SNA
CIS	BH62-00040A	HEAT SINK-HOR.	PN19MT,A1050S,T2.0,95,110,-,-,-	SNA
HS409	BH99-00030A	ASSY HEAT/SINK	HS TR,SCREW+NUT,SKS10N20(4),,-,OIL SILICON	SNA
CIS	6006-001008	SCREW-ASS'Y MACH	WSP,BH,+,M3,L10,ZPC(YEL),SWRCH	SNA
CIS	6021-000118	NUT-HEXAGON	1C,M3,ZPC(YEL),SM20C	SNA
CIS	BH62-00034A	HEAT SINK-TR	PN19MT,A1050S,T1.0,W10,L55,-,-,-	SNA
HS401	BH99-00041A	ASSY HEAT/SINK	HS,SPRING,SFP9634,-,-,OIL SILICON	SNA
CIS	BH61-00004A	SPRING-TR	CDA,CDB,SUS304,-,-,-,-,TO.5,-,-,-	SNA
CIS	BH62-00039A	HEAT SINK-TR	PN19MT,A1050S,T1.0,20,20,-,-,-	SNA
HS508	BH99-00045A	ASSY HEAT/SINK	HS,SCREW+NUT,TIP29C,-,-,OIL SILICON	SNA
CIS	0502-000348	TR-POWER	TIP29C,NPN,2W,TO-220,-,15-75	
CIS	6006-001008	SCREW-ASS'Y MACH	WSP,BH,+,M3,L10,ZPC(YEL),SWRCH	SNA
CIS	6021-000118	NUT-HEXAGON	1C,M3,ZPC(YEL),SM20C	SNA
CIS	BH62-00051A	HEAT SINK-V IC	AQ17,SPC-1,T1.0,H60,L13,-,-,-	SNA
HS509	BH99-00045B	ASSY HEAT/SINK	HS,SCREW+NUT,TIP30C,-,-,OIL SILICON	SNA
CIS	0502-000351	TR-POWER	TIP30,PNP,2W,TO-220AB,-,15-75	
CIS	6006-001008	SCREW-ASS'Y MACH	WSP,BH,+,M3,L10,ZPC(YEL),SWRCH	SNA
CIS	6021-000118	NUT-HEXAGON	1C,M3,ZPC(YEL),SM20C	SNA
CIS	BH62-00051A	HEAT SINK-V IC	AQ17,SPC-1,T1.0,H60,L13,-,-,-	SNA

7 Electrical Parts List

Loc. No.	Code No.	Description	Specification	Remarks
HS60	BH99-10019N	ASSY,HEAT/SINK	HS,-,31DF6,-,-,SOLDER,-,-	SNA
CIS	0402-001289	DIODE-RECTIFIER	31DF6,600V,3A,DO-201AD,BK	
CIS	BH62-30024B	HEAT/SINK-IC	SPC-1,T1,SN COATING,-	SNA
HS606	BH99-10019Q	ASSY,HEAT/SINK	HS,SOLDER,UF5404,-,-,-,-,-	SNA
CIS	0402-001294	DIODE-RECTIFIER	UF5404L-5709,400V,3A,DO-201AD,BK	
CIS	BH62-30024B	HEAT/SINK-IC	SPC-1,T1,SN COATING,-	SNA
HSD701	BH99-10019X	ASSY HEAT/SINK	HS TR,SOLDER,GUR460L,-,-,-	SNA
CIS	0402-001295	DIODE-RECTIFIER	GUR460L-5700,600V,4A,DO-201AD,BK	
CIS	BH62-30024B	HEAT/SINK-IC	SPC-1,T1,SN COATING,-	SNA
HSQ701	BH99-10047E	ASSY HEAT/SINK	HS TR,SCREW+NUT,2SK2761,-,-,-,OIL SILICON	SNA
CIS	6006-001008	SCREW-ASS'Y MACH	WSP,BH,+,M3,L10,ZPC(YEL),SWRCH	SNA
CIS	6021-000118	NUT-HEXAGON	1C,M3,ZPC(YEL),SM20C	SNA
CIS	BH62-30409A	HEAT/SINK-TR	A6063S,T1.5,-,CGH7609	SNA
HS602	BH99-10047H	ASSY HEAT/SINK	HS TR,SPRING,D5SB60,-,-,-,OIL SILICON	SNA
CIS	0402-001160	DIODE-BRIDGE	D5SB60,600V,6A,SIP-4,-	
CIS	BH61-70003A	SPRING ETC	CVT4857,STS304-W1/2H,W3.8,-,L30,L30,-,TO.5,DEGRE,W3.8,STS304-W1/2H	SNA
CIS	BH62-30409A	HEAT/SINK-TR	A6063S,T1.5,-,CGH7609	SNA
HS601	BH99-10052L	ASSY HEAT/SINK	HS POWER,SPRING,DP408,-,-,-,RUBBER SILICON	SNA
CIS	BH13-00019A	IC-POWER SWTICH	DP408,PN19MT,5P,-,25to+85C,TO-3P-5L,-,35V,ST	
CIS	BH61-70003A	SPRING ETC	CVT4857,STS304-W1/2H,W3.8,-,L30,L30,-,TO.5,DEGRE,W3.8,STS304-W1/2H	SNA
CIS	BH62-30411C	HEAT/SINK	A6063S,T1.8,-,ALL	SNA

7-2 Video PCB Parts

Loc. No.	Code No.	Description	Specification	Remarks
-	BH98-00335A	ASSY PCB/VIDEO	BL17MO,-,-,-	SNA
JCIS	BH39-00319A	CBF HARNESS	PN15HT,3*0.16TA*16,-,-,60MM,-,-,ST710095-3,EARTH CLIP,-,-,-,-,-,-,-	
CIS	BH39-00350A	CBF-GND ASS'Y	-TUBE TIN WIRE(8*0.16)UL,1P,1P,230MM,-,-,35068-9822,-,BK,500V,-,230MM,8*0.16*16	
CIS	BH68-00001A	LABEL/MARK-CDT	ART-PAPER 100G,-,WHT,BLK,-,ALL,CDT	SNA
CIS	BH71-00045A	EARTH-PLATE/VIDEO	PG17HS,PG19HS,SUS304 3/4H TO.15,-,-,-	SNA
CIS	BH75-00085H	UNIT-COVER(VIDEO)	AQ19FS,-,SPTE TO.2,-,-,AQ19FS,-	SNA
CIS	BH39-00138A	CBF-HARNESS	-,-,150MM,-,-,8*0.16TA*16,35068-9822/35798-981	
CIS	BH71-00021A	COVER-VIDEO(SHIELD)	PG17HS,SPTE,TO.3,-,-	SNA
CIS	BH71-10311A	EARTH-PLATE	PBS 3/4H,TO.2	SNA
CIS	BH75-00193A	UNIT/SHIELD-VIDEO	PG17HS,-,A1050S,-,-,PG,-	SNA
CIS	BH61-00002A	SPRING-VIDEO	CDB7907,STS H14 -,-,-,-,-,T1.0,-,-,-	SNA
CIS	BH71-00022A	SHIELD-VIDEO	PG17HS,A1050S,T1.0,-,-	SNA
CIS	BH72-00058A	HOLDER-VIDEO	PG17HS,ABS+PC,5V(NONE,1,PHOSPHATE),IV16,-,-	SNA
CIS	BH73-00014A	HOLDER-RUBBER(NORMAL)	DEL,SILICON V2,GRAY,-,-,-,NORMAL	SNA
CN101	3711-004228	CONNECTOR-HEADER	BOX,6P,1R,2MM,ANGLE,SN	SNA
CN102	3711-004123	CONNECTOR-HEADER	BOX,15P,1R,2mm,ANGLE,SN	SNA
CN104	3711-002348	CONNECTOR-HEADER	BOX,2P,1R,2mm,ANGLE,SN	SNA
CN105	3711-002348	CONNECTOR-HEADER	BOX,2P,1R,2mm,ANGLE,SN	SNA
H/S+SH/VID	6003-000010	SCREW-TAPTITE	BWH,+,-,B,M3,L10,ZPC(YEL),SWRCH1	SNA
HS102	BH62-00009A	HEAT SINK-IC	A6063S,L35XW25.6XT2.5,-,CSV9329	SNA
IC102	1201-001693	IC-VIDEO AMP	2503,DIP,32P,600MIL,-,-,PLASTIC,12.6V,1.38W,-25to+80C,-,-,-,-,-,ST	
IC106	BH13-00009A	IC-H/V CONVERGENCE	PG17/19,AN5452,SIP,12P,H/V CONVERGENCE,-,1171MW	
SH/VID	6502-000001	CABLE CLAMP	DAWH-5NB,D15,L35,NYLON66,NTR	SNA
SH/VID	6502-000127	CABLE CLAMP	DAWH-18NB,ID15,-,NYLON66,NTR	SNA
SK105	3704-001142	SOCKET-CRT	10P,22.5PI,25.6PI,NI,-	
C100	2203-000239	C-CERAMIC,CHIP	0.1nF,5%,50V,NP0,TP,2012	
C105	2203-000204	C-CERAMIC,CHIP	100nF,10%,25V,X7R,TP,2012	
C106	2203-000204	C-CERAMIC,CHIP	100nF,10%,25V,X7R,TP,2012	
C107	2203-000260	C-CERAMIC,CHIP	10nF,10%,50V,X7R,TP,2012	
C108	2203-000389	C-CERAMIC,CHIP	0.015nF,5%,50V,NP0,TP,2012	
C109	2203-000204	C-CERAMIC,CHIP	100nF,10%,25V,X7R,TP,2012	
C110	2203-000204	C-CERAMIC,CHIP	100nF,10%,25V,X7R,TP,2012	
C111	2203-000204	C-CERAMIC,CHIP	100nF,10%,25V,X7R,TP,2012	
C119	2203-000204	C-CERAMIC,CHIP	100nF,10%,25V,X7R,TP,2012	
C123	2203-000204	C-CERAMIC,CHIP	100nF,10%,25V,X7R,TP,2012	
C128	2203-000260	C-CERAMIC,CHIP	10nF,10%,50V,X7R,TP,2012	
C129	2203-000239	C-CERAMIC,CHIP	0.1nF,5%,50V,NP0,TP,2012	
C130	2203-000239	C-CERAMIC,CHIP	0.1nF,5%,50V,NP0,TP,2012	
C134	2203-000204	C-CERAMIC,CHIP	100nF,10%,25V,X7R,TP,2012	
C136	2203-000260	C-CERAMIC,CHIP	10nF,10%,50V,X7R,TP,2012	
CB02	2203-000204	C-CERAMIC,CHIP	100nF,10%,25V,X7R,TP,2012	
CB03	2203-000204	C-CERAMIC,CHIP	100nF,10%,25V,X7R,TP,2012	
CG02	2203-000204	C-CERAMIC,CHIP	100nF,10%,25V,X7R,TP,2012	
CG03	2203-000204	C-CERAMIC,CHIP	100nF,10%,25V,X7R,TP,2012	
CR02	2203-000204	C-CERAMIC,CHIP	100nF,10%,25V,X7R,TP,2012	
CR03	2203-000204	C-CERAMIC,CHIP	100nF,10%,25V,X7R,TP,2012	
IC103	1204-001864	IC-OSD PROCESSOR	SSD2509X09-S0,SOP,24P,295MIL,PLASTIC,6.5V,1200MW,-20+70C,TR,10LANGUAGES	
R111	2007-000290	R-CHIP	1000HM,5%,1/10W,DA,TP,2012	
R112	2007-000300	R-CHIP	10KOHM,5%,1/10W,DA,TP,2012	
R113	2007-000518	R-CHIP	2.7KOHM,5%,1/10W,DA,TP,2012	
R114	2007-000300	R-CHIP	10KOHM,5%,1/10W,DA,TP,2012	
R115	2007-000586	R-CHIP	22KOHM,5%,1/10W,DA,TP,2012	
R116	2007-000290	R-CHIP	1000HM,5%,1/10W,DA,TP,2012	
R117	2007-000290	R-CHIP	1000HM,5%,1/10W,DA,TP,2012	
R118	2007-000290	R-CHIP	1000HM,5%,1/10W,DA,TP,2012	

7 Electrical Parts List

Loc. No.	Code No.	Description	Specification	Remarks
R119	2007-000493	R-CHIP	2.2KOHM,5%,1/10W,DA,TP,2012	
R120	2007-000300	R-CHIP	10KOHM,5%,1/10W,DA,TP,2012	
R121	2007-000941	R-CHIP	47KOHM,5%,1/10W,DA,TP,2012	
R122	2007-000241	R-CHIP	1.5KOHM,5%,1/10W,DA,TP,2012	
R124	2007-000872	R-CHIP	4.7KOHM,5%,1/10W,DA,TP,2012	
R125	2007-000518	R-CHIP	2.7KOHM,5%,1/10W,DA,TP,2012	
R126	2007-000931	R-CHIP	470OHM,5%,1/10W,DA,TP,2012	
R128	2007-000981	R-CHIP	5.6KOHM,5%,1/10W,DA,TP,2012	
R129	2007-000355	R-CHIP	12KOHM,5%,1/10W,DA,TP,2012	
R130	2007-001071	R-CHIP	6.8KOHM,5%,1/10W,DA,TP,2012	
R131	2007-000468	R-CHIP	1KOHM,5%,1/10W,DA,TP,2012	
R132	2007-000468	R-CHIP	1KOHM,5%,1/10W,DA,TP,2012	
R133	2007-000468	R-CHIP	1KOHM,5%,1/10W,DA,TP,2012	
R134	2007-000468	R-CHIP	1KOHM,5%,1/10W,DA,TP,2012	
R135	2007-000931	R-CHIP	470OHM,5%,1/10W,DA,TP,2012	
R137	2007-000300	R-CHIP	10KOHM,5%,1/10W,DA,TP,2012	
R138	2007-000300	R-CHIP	10KOHM,5%,1/10W,DA,TP,2012	
R139	2007-000766	R-CHIP	330OHM,5%,1/10W,DA,TP,2012	
R140	2007-000766	R-CHIP	330OHM,5%,1/10W,DA,TP,2012	
R141	2007-000766	R-CHIP	330OHM,5%,1/10W,DA,TP,2012	
R142	2007-000766	R-CHIP	330OHM,5%,1/10W,DA,TP,2012	
R143	2007-000572	R-CHIP	220OHM,5%,1/10W,DA,TP,2012	
R144	2007-000710	R-CHIP	3.9KOHM,5%,1/10W,DA,TP,2012	
RB01	2007-001166	R-CHIP	75OHM,5%,1/10W,DA,TP,2012	
RB02	2007-000593	R-CHIP	22OHM,5%,1/10W,DA,TP,2012	
RB04	2007-000941	R-CHIP	47KOHM,5%,1/10W,DA,TP,2012	
RB05	2007-000822	R-CHIP	390OHM,5%,1/10W,DA,TP,2012	
RB06	2007-000290	R-CHIP	100OHM,5%,1/10W,DA,TP,2012	
RB08	2007-000593	R-CHIP	22OHM,5%,1/10W,DA,TP,2012	
RG01	2007-001166	R-CHIP	75OHM,5%,1/10W,DA,TP,2012	
RG02	2007-000593	R-CHIP	22OHM,5%,1/10W,DA,TP,2012	
RG04	2007-000941	R-CHIP	47KOHM,5%,1/10W,DA,TP,2012	
RG05	2007-000822	R-CHIP	390OHM,5%,1/10W,DA,TP,2012	
RG06	2007-000401	R-CHIP	150OHM,5%,1/10W,DA,TP,2012	
RG08	2007-000593	R-CHIP	22OHM,5%,1/10W,DA,TP,2012	
RR01	2007-001166	R-CHIP	75OHM,5%,1/10W,DA,TP,2012	
RR02	2007-000593	R-CHIP	22OHM,5%,1/10W,DA,TP,2012	
RR04	2007-000941	R-CHIP	47KOHM,5%,1/10W,DA,TP,2012	
RR05	2007-000822	R-CHIP	390OHM,5%,1/10W,DA,TP,2012	
RR06	2007-000290	R-CHIP	100OHM,5%,1/10W,DA,TP,2012	
RR08	2007-000593	R-CHIP	22OHM,5%,1/10W,DA,TP,2012	
BD101	3301-000011	CORE-FERRITE BEAD	AA,3.5x1.0x5.7mm,1500,2375G	SNA
BD102	3301-000011	CORE-FERRITE BEAD	AA,3.5x1.0x5.7mm,1500,2375G	SNA
BD103	3301-000011	CORE-FERRITE BEAD	AA,3.5x1.0x5.7mm,1500,2375G	SNA
BD104	3301-000011	CORE-FERRITE BEAD	AA,3.5x1.0x5.7mm,1500,2375G	SNA
BD105	3301-000011	CORE-FERRITE BEAD	AA,3.5x1.0x5.7mm,1500,2375G	SNA
BD106	3301-000011	CORE-FERRITE BEAD	AA,3.5x1.0x5.7mm,1500,2375G	SNA
BD108	3301-000011	CORE-FERRITE BEAD	AA,3.5x1.0x5.7mm,1500,2375G	SNA
BD109	3301-000011	CORE-FERRITE BEAD	AA,3.5x1.0x5.7mm,1500,2375G	SNA
BD111	3301-000011	CORE-FERRITE BEAD	AA,3.5x1.0x5.7mm,1500,2375G	SNA
C104	2401-003224	C-AL	470uF,20%,16V,WT,TP,8X11.5,5mm	
C112	2401-003224	C-AL	470uF,20%,16V,WT,TP,8X11.5,5mm	△
C113	2401-003034	C-AL	220uF,20%,16V,WT,TP,8x11.5,5	
C116	2401-000393	C-AL	10uF,20%,100V,WT,TP,8x11.5,5	
C117	2401-000393	C-AL	10uF,20%,100V,WT,TP,8x11.5,5	

Loc. No.	Code No.	Description	Specification	Remarks
C118	2401-000393	C-AL	10uF,20%,100V,WT,TP,8x11.5,5	
C120	2401-001281	C-AL	4.7uF,20%,50V,WT,TP,5x11,5	
C121	2401-001281	C-AL	4.7uF,20%,50V,WT,TP,5x11,5	
C122	2401-003034	C-AL	220uF,20%,16V,WT,TP,8x11.5,5	
C124	2301-000148	C-FILM,PEF	10nF,5%,100V,TP,7x3.2x7mm,5mm	
C125	2201-000288	C-CERAMIC,DISC	1nF,10%,2kV,Y5P,TP,9x5,10	
C126	2201-000119	C-CERAMIC,DISC	100nF,+80-20%,50V,Y5V,TP,8x3,5	
C127	2201-000530	C-CERAMIC,DISC	4.7nF,10%,500V,Y5P,TP,12.5x4,5	
C132	2401-000603	C-AL	1uF,20%,50V,GP,TP,5x11,5	
C133	2401-000603	C-AL	1uF,20%,50V,GP,TP,5x11,5	
C135	2401-000042	C-AL	100uF,20%,16V,GP,TP,6.3x7,5	
C137	2401-002075	C-AL	4.7uF,20%,50V,GP,TP,5x11,5	
C138	2401-000031	C-AL	47uF,20%,16V,GP,TP,5x11,5	
C139	2401-000042	C-AL	100uF,20%,16V,GP,TP,6.3x7,5	
C140	2401-000042	C-AL	100uF,20%,16V,GP,TP,6.3x7,5	
C141	2401-000042	C-AL	100uF,20%,16V,GP,TP,6.3x7,5	
C144	2301-000148	C-FILM,PEF	10nF,5%,100V,TP,7x3.2x7mm,5mm	
CB04	2401-000055	C-AL	1uF,20%,160V,WT,TP,3x11,5mm	
CB06	2301-000010	C-FILM,PEF	100nF,5%,100V,TP,11.5x12.5mm,5	
CG04	2401-000055	C-AL	1uF,20%,160V,WT,TP,3x11,5mm	
CG06	2301-000010	C-FILM,PEF	100nF,5%,100V,TP,11.5x12.5mm,5	
CN12	BH71-40300A	PIN-HINGE	-,BRASS,D2.36,SN,HEAT/SINK	SNA
CN13	BH71-40300A	PIN-HINGE	-,BRASS,D2.36,SN,HEAT/SINK	SNA
CN14	BH71-40300A	PIN-HINGE	-,BRASS,D2.36,SN,HEAT/SINK	SNA
CR04	2401-000055	C-AL	1uF,20%,160V,WT,TP,3x11,5mm	
CR06	2301-000010	C-FILM,PEF	100nF,5%,100V,TP,11.5x12.5mm,5	
D101	0401-000005	DIODE-SWITCHING	1N4148,100V,200mA,DO-35,TP	
DB01	0401-000005	DIODE-SWITCHING	1N4148,100V,200mA,DO-35,TP	
DB02	0401-000005	DIODE-SWITCHING	1N4148,100V,200mA,DO-35,TP	
DB03	0401-000004	DIODE-SWITCHING	1SS244,250V,625mA,DO-34,TP	
DB04	0401-000004	DIODE-SWITCHING	1SS244,250V,625mA,DO-34,TP	
DB05	0401-000005	DIODE-SWITCHING	1N4148,100V,200mA,DO-35,TP	
DG01	0401-000005	DIODE-SWITCHING	1N4148,100V,200mA,DO-35,TP	
DG02	0401-000005	DIODE-SWITCHING	1N4148,100V,200mA,DO-35,TP	
DG03	0401-000004	DIODE-SWITCHING	1SS244,250V,625mA,DO-34,TP	
DG04	0401-000004	DIODE-SWITCHING	1SS244,250V,625mA,DO-34,TP	
DG05	0401-000005	DIODE-SWITCHING	1N4148,100V,200mA,DO-35,TP	
DR01	0401-000005	DIODE-SWITCHING	1N4148,100V,200mA,DO-35,TP	
DR02	0401-000005	DIODE-SWITCHING	1N4148,100V,200mA,DO-35,TP	
DR03	0401-000004	DIODE-SWITCHING	1SS244,250V,625mA,DO-34,TP	
DR04	0401-000004	DIODE-SWITCHING	1SS244,250V,625mA,DO-34,TP	
DR05	0401-000005	DIODE-SWITCHING	1N4148,100V,200mA,DO-35,TP	
EY1	6042-000001	EYELET	ID2.2,OD2.7,L3.1,SN,BSS3-E/EH	SNA
EY2	6042-000001	EYELET	ID2.2,OD2.7,L3.1,SN,BSS3-E/EH	SNA
EY5	6042-000002	EYELET	ID1.5,OD2.L3.1,SN,BSS3-E/EH	SNA
EY6	6042-000002	EYELET	ID1.5,OD2.L3.1,SN,BSS3-E/EH	SNA
EY7	6042-000002	EYELET	ID1.5,OD2.L3.1,SN,BSS3-E/EH	SNA
EY8	6042-000002	EYELET	ID1.5,OD2.L3.1,SN,BSS3-E/EH	SNA
IC104	BH13-00022A	IC-BIAS CLAMP	LM2480NA,PN15H/17L,8P,0to+70C,DIP,3mA,85V,ST	
JP1	BH39-40305U	CBF HARNESS	52MM,AWG22(0.6PI),-,-,AWG22(0.	
JP100	BH39-40305U	CBF HARNESS	52MM,AWG22(0.6PI),-,-,AWG22(0.	
JP101	BH39-40305U	CBF HARNESS	52MM,AWG22(0.6PI),-,-,AWG22(0.	
JP102	BH39-40305U	CBF HARNESS	52MM,AWG22(0.6PI),-,-,AWG22(0.	
JP103	BH39-40305U	CBF HARNESS	52MM,AWG22(0.6PI),-,-,AWG22(0.	
JP104	BH39-40305U	CBF HARNESS	52MM,AWG22(0.6PI),-,-,AWG22(0.	

[illegible]

Loc. No.	Code No.	Description	Specification	Remarks
JP98	BH39-40305U	CBF HARNESS	52MM,AWG22(0.6PI),-,-,AWG22(0.	
JP99	BH39-40305U	CBF HARNESS	52MM,AWG22(0.6PI),-,-,AWG22(0.	
L100	2701-000164	INDUCTOR-AXIAL	27uH,10%,4.2x9.8mm	
L101	2701-000319	INDUCTOR-AXIAL	470NH,10%,3X7MM	
L106	2701-000187	INDUCTOR-AXIAL	4.7uH,10%,4.2x9.8mm	
LB01	2701-001063	INDUCTOR-AXIAL	150nH,10%,3x7mm	
LG01	2701-001062	INDUCTOR-AXIAL	120nH,10%,3x7mm	
LR01	2701-001062	INDUCTOR-AXIAL	120nH,10%,3x7mm	
MP1.0	BH41-00202A	PCB SUB	CEPHEUS_VIDEO.FR1,1,-,1.6T,247*330,-,4,-,21 VIDEO	
Q101	0501-000122	TR-SMALL SIGNAL	2N3904,NPN,625mW,TO-92,TP,100-300	
Q102	0501-000122	TR-SMALL SIGNAL	2N3904,NPN,625mW,TO-92,TP,100-300	
Q103	0501-000122	TR-SMALL SIGNAL	2N3904,NPN,625mW,TO-92,TP,100-300	
Q104	0501-000122	TR-SMALL SIGNAL	2N3904,NPN,625mW,TO-92,TP,100-300	
Q105	0501-002228	TR-SMALL SIGNAL	KTA1281,PNP,1000mW,TO-92L,TP,120-240	
Q106	0501-000586	TR-SMALL SIGNAL	KSC945,NPN,250mW,TO-92,TP,120-240	
R106	2001-000935	R-CARBON	680HM,5%,1/4W,AA,TP,2.4X6.4MM	
R107	2001-000281	R-CARBON	1000HM,5%,1/8W,AA,TP,1.8X3.2MM	
R123	2002-001022	R-COMPOSITION	30MOHM,5%,1/4W,AA,TP,2.5X6.5MM	
R127	2001-001107	R-CARBON(S)	220ohm,5%,1/2W,AA,TP,2.4x6.4mm	
R145	2001-000019	R-CARBON(S)	100HM,5%,1/2W,AA,TP,2.4X6.4MM	
R146	2001-000019	R-CARBON(S)	100HM,5%,1/2W,AA,TP,2.4X6.4MM	
R147	2003-000744	R-METAL OXIDE(S)	56ohm,5%,2W,AA,TP,4x12mm	
R148	2003-000744	R-METAL OXIDE(S)	56ohm,5%,2W,AA,TP,4x12mm	
RB07	2001-000009	R-CARBON	20KOHM,5%,1/8W,AA,TP,1.8X3.2MM	
RB09	2001-000546	R-CARBON	270KOHM,5%,1/4W,AA,TP,2.4X6.4MM	
RB12	2001-000022	R-CARBON(S)	330HM,5%,1/2W,AA,TP,2.4X6.4MM	
RG07	2001-000009	R-CARBON	20KOHM,5%,1/8W,AA,TP,1.8X3.2MM	
RG09	2001-000546	R-CARBON	270KOHM,5%,1/4W,AA,TP,2.4X6.4MM	
RG12	2001-001153	R-CARBON(S)	470HM,5%,1/2W,AA,TP,2.4X6.4MM	
RR07	2001-000009	R-CARBON	20KOHM,5%,1/8W,AA,TP,1.8X3.2MM	
RR09	2001-000546	R-CARBON	270KOHM,5%,1/4W,AA,TP,2.4X6.4MM	
RR12	2001-001153	R-CARBON(S)	470HM,5%,1/2W,AA,TP,2.4X6.4MM	
SK101	4715-000102	SURGE ABSORBER	200V,20%,1000A,-,RADIAL	SNA
SK102	4715-000102	SURGE ABSORBER	200V,20%,1000A,-,RADIAL	SNA
SK103	4715-000102	SURGE ABSORBER	200V,20%,1000A,-,RADIAL	SNA
SK104	4715-000106	SURGE ABSORBER	300V,210-390V,-,-,AXIAL	SNA
SK108	4715-001055	SURGE ABSORBER	1kV,+50-10%,-,-,RADIAL	SNA
ZD101	0403-000509	DIODE-ZENER	MTZJ5.6B,5.6V,5.45-5.73V,500mW	
ZD103	0403-000509	DIODE-ZENER	MTZJ5.6B,5.6V,5.45-5.73V,500mW	
HS2	BH99-00008F	ASSY HEAT/SINK	HS VIDEO,SCREW+NUT,LM2412,-,-,-	SNA
CIS	6006-001008	SCREW-ASS'Y MACH	WSP,BH,+,M3,L10,ZPC(YEL),SWRCH	SNA
CIS	6021-000118	NUT-HEXAGON	1C,M3,ZPC(YEL),SM20C	SNA
CIS	BH13-00024A	IC HYBRID	LM2412T,AQ19FS,11P,-20TO+100C,TO-220-11L,26MA,90V,ST	
CIS	BH62-00012A	HEAT SINK-VIDEO	A1050S,T2.0,-,-,PEGSUS	SNA

7-3 MISC PCB Parts

Loc. No.	Code No.	Description	Specification	Remarks
MISC				
B/BNC+SH/BNC	6003-000010	SCREW-TAPTITE	BWH,+ ,B,M3,L10,ZPC(YEL),SWRCH1	SNA
CIS	6502-000127	CABLE CLAMP	DAWH-18NB,ID15,-,NYLON66,NTR	SNA
CIS	BH65-00003A	CABLE CLAMP-METAL	PG19,A1050S,-,-,SILVER,-	SNA
CIS	BH71-00020A	SHIELD-BNC(REAR)	PG17HS,SPTT,T0.2,-,-	SNA
CIS	BH75-00069A	UNIT/BRKT	PG17HS,-,DB-1529B,-,-	SNA
CIS	BH75-00131A	UNIT/SHIELD-BNC(D)	PG17NO,SECC T0.5,-,-,-	SNA
CIS	6103-000007	SUPPORTER	DAMT-2N,L1.2,NTR,NYLON66	SNA
CIS	BH70-00019A	SHIELD-BNC(COVER)	PG17HS,SECC,T0.5,-,-	SNA
CN101_ASSY	BH39-00094A	CBF-HARNESS	6P/7P,150MM,RED/GRN/BLU,UL1354,AWG28,SMH200-06/SMH200-07	
CN103	3710-001523	CONNECTOR-SOCKET	16P,1R,2.54MM,ANGLE,AUF	SNA
CN104	3711-004068	CONNECTOR-HEADER	BOX,5P,1R,2mm,ANGLE,SN	SNA
CN105	3711-004350	CONNECTOR-HEADER	BOX,7P,1R,2MM,ANGLE,SN	SNA
IC1	1001-001163	IC-ANALOG SWITCH	S1D2507B02,ANALOG SWITCH,SDIP,24P,300MIL,SINGLE,7V,25to+75C,PLASTIC,0.42W,---	
BD150	0402-001039	DIODE-RECTIFIER	SB020,20V,600mA,MPG06,TP	
BD151	3301-000011	CORE-FERRITE BEAD	AA,3.5x1.0x5.7mm,1500,2375G	SNA
C132	2201-000573	C-CERAMIC,DISC	0.047nF,5%,50V,NP0,TP,5x3.5,5	
C133	2201-000573	C-CERAMIC,DISC	0.047nF,5%,50V,NP0,TP,5x3.5,5	
C151	2202-002009	C-CERAMIC,MLC-AXIAL	100nF,+80-20%,50V,Y5V,TP,2.3X3	
C152	2201-000573	C-CERAMIC,DISC	0.047nF,5%,50V,NP0,TP,5x3.5,5	
C159	2401-000443	C-AL	10uF,20%,25V,GP,TP,5x5mm,2mm	
C160	2202-002009	C-CERAMIC,MLC-AXIAL	100nF,+80-20%,50V,Y5V,TP,2.3X3	
C95	2201-000573	C-CERAMIC,DISC	0.047nF,5%,50V,NP0,TP,5x3.5,5	
C96	2305-000665	C-FILM,MPEF	100nF,5%,63V,TP,7.5x4.0x5.0mm,	
C97	2202-002009	C-CERAMIC,MLC-AXIAL	100nF,+80-20%,50V,Y5V,TP,2.3X3	
C98	2401-000443	C-AL	10uF,20%,25V,GP,TP,5x5mm,2mm	
CB51	2401-000443	C-AL	10uF,20%,25V,GP,TP,5x5mm,2mm	
CB52	2401-000443	C-AL	10uF,20%,25V,GP,TP,5x5mm,2mm	
CB53	2202-002009	C-CERAMIC,MLC-AXIAL	100nF,+80-20%,50V,Y5V,TP,2.3X3	
CG51	2401-000443	C-AL	10uF,20%,25V,GP,TP,5x5mm,2mm	
CG52	2401-000443	C-AL	10uF,20%,25V,GP,TP,5x5mm,2mm	
CG53	2202-002009	C-CERAMIC,MLC-AXIAL	100nF,+80-20%,50V,Y5V,TP,2.3X3	
CR51	2401-000443	C-AL	10uF,20%,25V,GP,TP,5x5mm,2mm	
CR52	2401-000443	C-AL	10uF,20%,25V,GP,TP,5x5mm,2mm	
CR53	2202-002009	C-CERAMIC,MLC-AXIAL	100nF,+80-20%,50V,Y5V,TP,2.3X3	
DB51	0401-000005	DIODE-SWITCHING	1N4148,100V,200mA,DO-35,TP	
DB52	0401-000005	DIODE-SWITCHING	1N4148,100V,200mA,DO-35,TP	
DB53	0401-000005	DIODE-SWITCHING	1N4148,100V,200mA,DO-35,TP	
DB54	0401-000005	DIODE-SWITCHING	1N4148,100V,200mA,DO-35,TP	
DG51	0401-000005	DIODE-SWITCHING	1N4148,100V,200mA,DO-35,TP	
DG52	0401-000005	DIODE-SWITCHING	1N4148,100V,200mA,DO-35,TP	
DG53	0401-000005	DIODE-SWITCHING	1N4148,100V,200mA,DO-35,TP	
DG54	0401-000005	DIODE-SWITCHING	1N4148,100V,200mA,DO-35,TP	
DR51	0401-000005	DIODE-SWITCHING	1N4148,100V,200mA,DO-35,TP	
DR52	0401-000005	DIODE-SWITCHING	1N4148,100V,200mA,DO-35,TP	
DR53	0401-000005	DIODE-SWITCHING	1N4148,100V,200mA,DO-35,TP	
DR54	0401-000005	DIODE-SWITCHING	1N4148,100V,200mA,DO-35,TP	
EY101	6042-000001	EYELET	ID2.2,OD2.7,L3.1,SN,BSS3-E/EH	SNA
EY102	6042-000001	EYELET	ID2.2,OD2.7,L3.1,SN,BSS3-E/EH	SNA
EY103	6042-000001	EYELET	ID2.2,OD2.7,L3.1,SN,BSS3-E/EH	SNA
EY104	6042-000001	EYELET	ID2.2,OD2.7,L3.1,SN,BSS3-E/EH	SNA
EY105	6042-000001	EYELET	ID2.2,OD2.7,L3.1,SN,BSS3-E/EH	SNA
IC3	0801-000337	IC-CMOS LOGIC	74HCT14,SCHMITT INVERTER,DIP,	
JP107	BH39-40305U	CBF HARNESS	52MM,AWG22(0.6PI),-,-,AWG22(0.	
JP108	BH39-40305U	CBF HARNESS	52MM,AWG22(0.6PI),-,-,AWG22(0.	

Loc. No.	Code No.	Description	Specification	Remarks
JP109	BH39-40305U	CBF HARNESS	52MM,AWG22(0.6PI),-,-,AWG22(0.	SNA
JP110	BH39-40305U	CBF HARNESS	52MM,AWG22(0.6PI),-,-,AWG22(0.	
JP111	BH39-40305U	CBF HARNESS	52MM,AWG22(0.6PI),-,-,AWG22(0.	
JP112	BH39-40305U	CBF HARNESS	52MM,AWG22(0.6PI),-,-,AWG22(0.	
JP115	BH39-40305U	CBF HARNESS	52MM,AWG22(0.6PI),-,-,AWG22(0.	
JP117	BH39-40305U	CBF HARNESS	52MM,AWG22(0.6PI),-,-,AWG22(0.	
JP118	BH39-40305U	CBF HARNESS	52MM,AWG22(0.6PI),-,-,AWG22(0.	
JP119	BH39-40305U	CBF HARNESS	52MM,AWG22(0.6PI),-,-,AWG22(0.	
JP120	BH39-40305U	CBF HARNESS	52MM,AWG22(0.6PI),-,-,AWG22(0.	
JP121	BH39-40305U	CBF HARNESS	52MM,AWG22(0.6PI),-,-,AWG22(0.	
JP122	BH39-40305U	CBF HARNESS	52MM,AWG22(0.6PI),-,-,AWG22(0.	
JP123	BH39-40305U	CBF HARNESS	52MM,AWG22(0.6PI),-,-,AWG22(0.	
JP125	BH39-40305U	CBF HARNESS	52MM,AWG22(0.6PI),-,-,AWG22(0.	
JP126	BH39-40305U	CBF HARNESS	52MM,AWG22(0.6PI),-,-,AWG22(0.	
JP127	BH39-40305U	CBF HARNESS	52MM,AWG22(0.6PI),-,-,AWG22(0.	
JP128	BH39-40305U	CBF HARNESS	52MM,AWG22(0.6PI),-,-,AWG22(0.	
JP131	BH39-40305U	CBF HARNESS	52MM,AWG22(0.6PI),-,-,AWG22(0.	
JP132	BH39-40305U	CBF HARNESS	52MM,AWG22(0.6PI),-,-,AWG22(0.	
JP160	BH39-40305U	CBF HARNESS	52MM,AWG22(0.6PI),-,-,AWG22(0.	
JP161	BH39-40305U	CBF HARNESS	52MM,AWG22(0.6PI),-,-,AWG22(0.	
JP162	BH39-40305U	CBF HARNESS	52MM,AWG22(0.6PI),-,-,AWG22(0.	
JP163	BH39-40305U	CBF HARNESS	52MM,AWG22(0.6PI),-,-,AWG22(0.	
JP164	BH39-40305U	CBF HARNESS	52MM,AWG22(0.6PI),-,-,AWG22(0.	
JP165	BH39-40305U	CBF HARNESS	52MM,AWG22(0.6PI),-,-,AWG22(0.	
JP166	BH39-40305U	CBF HARNESS	52MM,AWG22(0.6PI),-,-,AWG22(0.	
JP168	BH39-40305U	CBF HARNESS	52MM,AWG22(0.6PI),-,-,AWG22(0.	
JP170	BH39-40305U	CBF HARNESS	52MM,AWG22(0.6PI),-,-,AWG22(0.	
JP171	BH39-40305U	CBF HARNESS	52MM,AWG22(0.6PI),-,-,AWG22(0.	
MP1.0	BH41-00168A	PCB SUB	AQ19FS, FR1,115*80,1.0,1.6T,115*80*1.6T,AQUILA,-,-,-	
QB52	0501-000621	TR-SMALL SIGNAL	2N5770,NPN,450mW,TO-92,TP,-	
QG52	0501-000621	TR-SMALL SIGNAL	2N5770,NPN,450mW,TO-92,TP,-	
QR52	0501-000621	TR-SMALL SIGNAL	2N5770,NPN,450mW,TO-92,TP,-	
R100	2001-000515	R-CARBON	2200HM,5%,1/8W,AA,TP,1.8X3.2MM	
R137	BH39-40305U	CBF HARNESS	52MM,AWG22(0.6PI),-,-,AWG22(0.	
R154	2001-000281	R-CARBON	1000HM,5%,1/8W,AA,TP,1.8X3.2MM	
R155	2001-000008	R-CARBON	15KOHM,5%,1/8W,AA,TP,1.8X3.2MM	
R159	2001-000666	R-CARBON	330HM,5%,1/8W,AA,TP,1.8X3.2MM	
R160	2001-000666	R-CARBON	330HM,5%,1/8W,AA,TP,1.8X3.2MM	
R95	2001-000281	R-CARBON	1000HM,5%,1/8W,AA,TP,1.8X3.2MM	
R96	2001-000281	R-CARBON	1000HM,5%,1/8W,AA,TP,1.8X3.2MM	
R97	2001-000281	R-CARBON	1000HM,5%,1/8W,AA,TP,1.8X3.2MM	
R98	2001-000290	R-CARBON	10KOHM,5%,1/8W,AA,TP,1.8X3.2MM	
R99	2001-000666	R-CARBON	330HM,5%,1/8W,AA,TP,1.8X3.2MM	
RB51	2001-000969	R-CARBON	750HM,5%,1/8W,AA,TP,1.8X3.2MM	
RB52	2001-000302	R-CARBON	100HM,5%,1/8W,AA,TP,1.8X3.2MM	
RB53	2001-000969	R-CARBON	750HM,5%,1/8W,AA,TP,1.8X3.2MM	
RB54	2001-000666	R-CARBON	330HM,5%,1/8W,AA,TP,1.8X3.2MM	
RB55	2001-000527	R-CARBON	220HM,5%,1/8W,AA,TP,1.8X3.2MM	
RG51	2001-000969	R-CARBON	750HM,5%,1/8W,AA,TP,1.8X3.2MM	
RG52	2001-000302	R-CARBON	100HM,5%,1/8W,AA,TP,1.8X3.2MM	
RG53	2001-000969	R-CARBON	750HM,5%,1/8W,AA,TP,1.8X3.2MM	
RG54	2001-000302	R-CARBON	100HM,5%,1/8W,AA,TP,1.8X3.2MM	
RG55	2001-000527	R-CARBON	220HM,5%,1/8W,AA,TP,1.8X3.2MM	
RR51	2001-000969	R-CARBON	750HM,5%,1/8W,AA,TP,1.8X3.2MM	
RR52	2001-000302	R-CARBON	100HM,5%,1/8W,AA,TP,1.8X3.2MM	

7 Electrical Parts List

Loc. No.	Code No.	Description	Specification	Remarks
RR53	2001-000969	R-CARBON	750HM,5%,1/8W,AA,TP,1.8X3.2MM	
RR54	2001-000302	R-CARBON	100HM,5%,1/8W,AA,TP,1.8X3.2MM	
RR55	2001-000527	R-CARBON	220HM,5%,1/8W,AA,TP,1.8X3.2MM	
ZD151	0403-000361	DIODE-ZENER	UZ6.2BSB,6.2V,5.99-6.24V,500mW	
ZD152	0403-000361	DIODE-ZENER	UZ6.2BSB,6.2V,5.99-6.24V,500mW	
ZD153	0403-000361	DIODE-ZENER	UZ6.2BSB,6.2V,5.99-6.24V,500mW	
ZD154	0403-000361	DIODE-ZENER	UZ6.2BSB,6.2V,5.99-6.24V,500mW	
ZD155	0403-000361	DIODE-ZENER	UZ6.2BSB,6.2V,5.99-6.24V,500mW	
ZD156	0403-000361	DIODE-ZENER	UZ6.2BSB,6.2V,5.99-6.24V,500mW	
ZD157	0403-000361	DIODE-ZENER	UZ6.2BSB,6.2V,5.99-6.24V,500mW	
ZD158	0403-000361	DIODE-ZENER	UZ6.2BSB,6.2V,5.99-6.24V,500mW	
ZD159	0403-000361	DIODE-ZENER	UZ6.2BSB,6.2V,5.99-6.24V,500mW	
ZD160	0403-000361	DIODE-ZENER	UZ6.2BSB,6.2V,5.99-6.24V,500mW	
ZD161	0403-000361	DIODE-ZENER	UZ6.2BSB,6.2V,5.99-6.24V,500mW	

7-4 Others

Part Name	Code No.	Description	Specification	Remarks
CRT	BH03-00025B	CRT-COLOR	M51QBN291X115(E-TCO)	
ASS'Y PBA UNIT	BH94-00381A	ASS'Y, PCB	CF21MS	
B/D ASS'Y CODE	BH98-00338A	ASS'Y, PCB-MAIN	CF21MS	
	BH98-00335A	ASS'Y, PCB-VIDEO	CF21MS	
	BH98-00336A	ASS'Y, PCB-BNC	CF21MS	
P/CORD	BH39-10007A	CBF-POWER/CORD	DEF,H05VV-F,250V/6A,IVY,1830MM	
	BH39-10339E	CBF-POWER/CORD	DEF,SVT,125V 7A/10A,IVY,1830MM	
SIGNAL	BH39-00001A	CBF-SIGNAL	1830MM, 15P/15P, IVY, 2990, D-SUB/MALE	

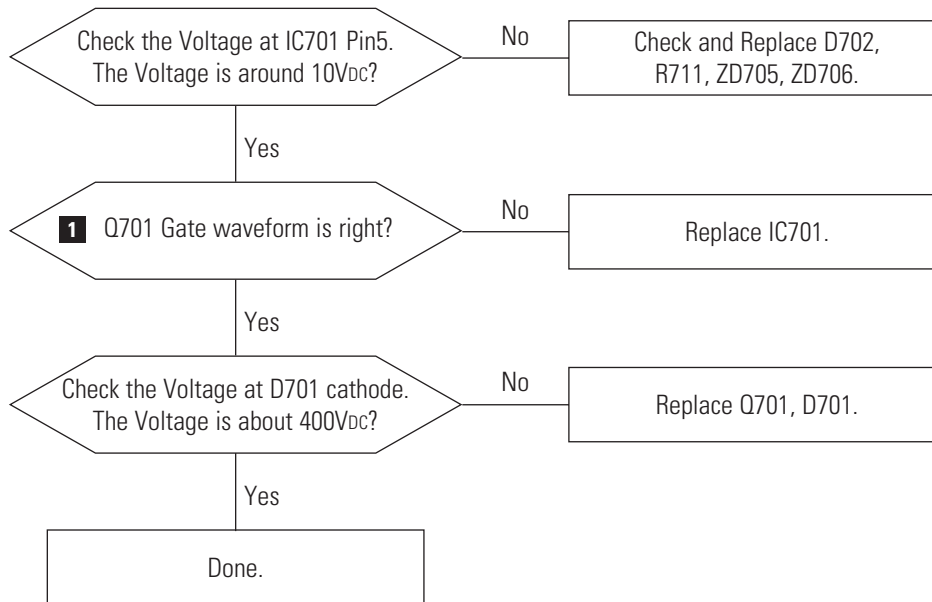
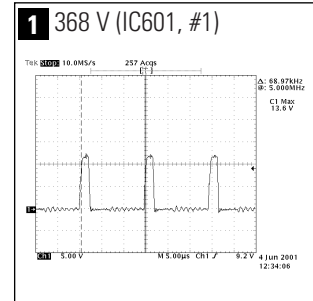
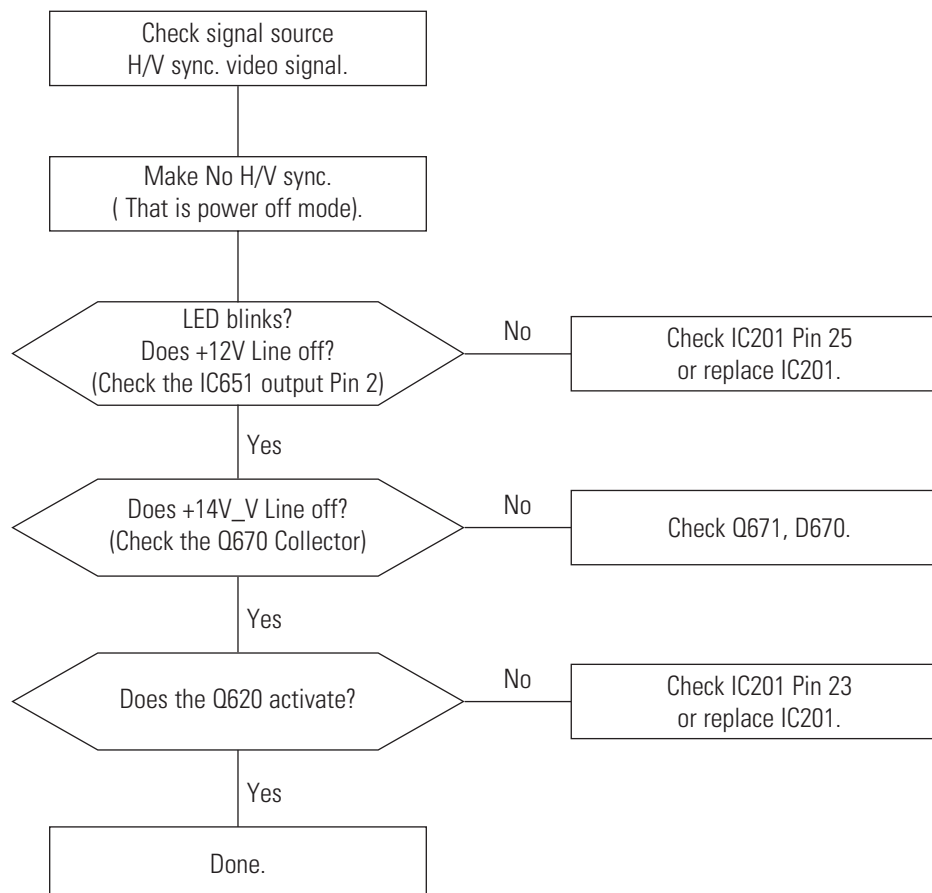
7-5 S-Correction Table

	S1	S2	S3	S4	S5
~114.9					
~104.9	H				
~99.9	H				
~94.9	H				
~91.9	H				
~84.9		H			
~80.9		H			
~77.9		H			
~75.9			H		
~69.9	H		H		
~67.9	H		H		
~64.9	H	H	H		
~60.9	H	H	H		
~58.9			H	H	
~54.9			H	H	
~50.9		H	H	H	
~45.9	H	H	H	H	
~39.9	H	H	H	H	H
~36.9	H	H	H	H	H
~34.9	H	H	H	H	H
~33	H	H	H	H	H

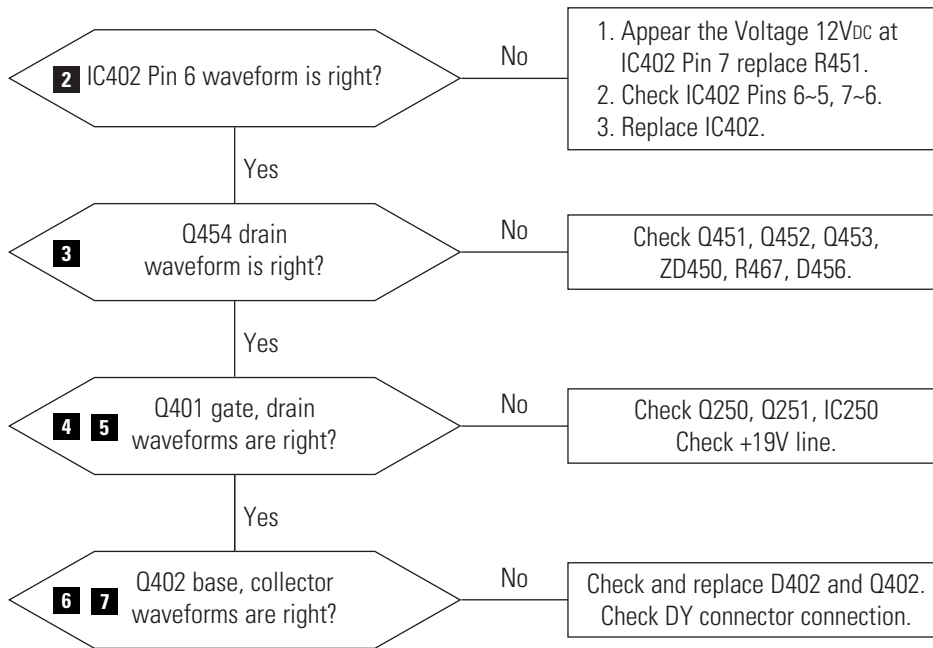
Memo

Loc. No.	Code No.	Description	Specification	Remarks

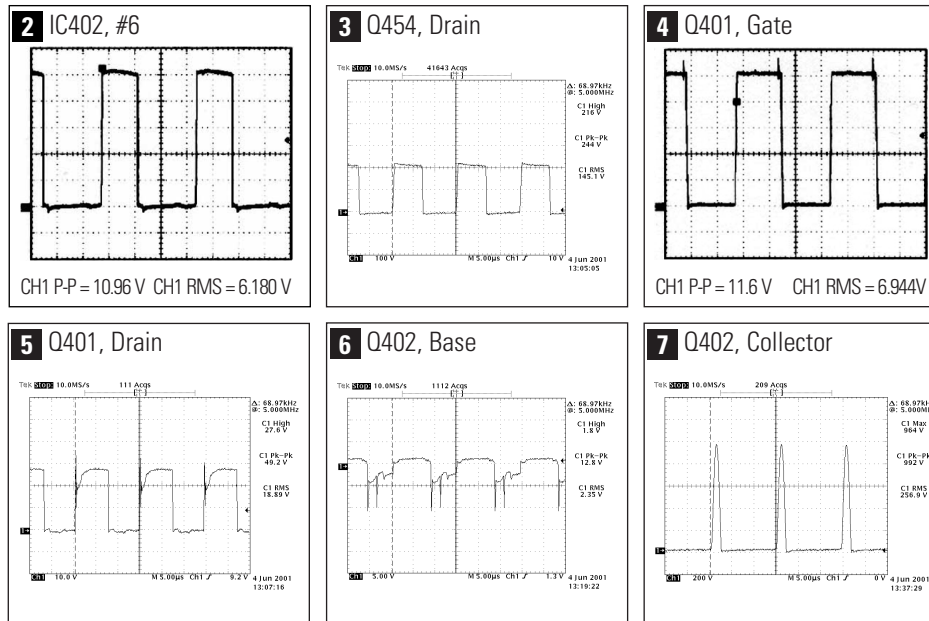
Memo

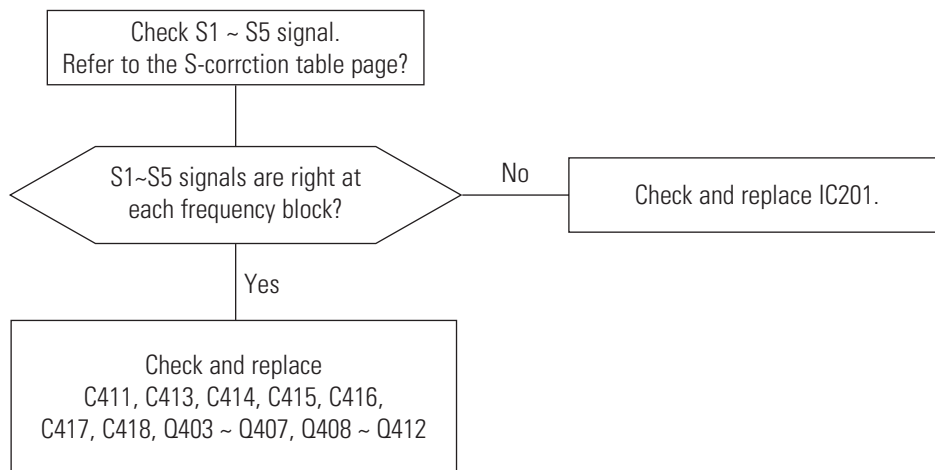
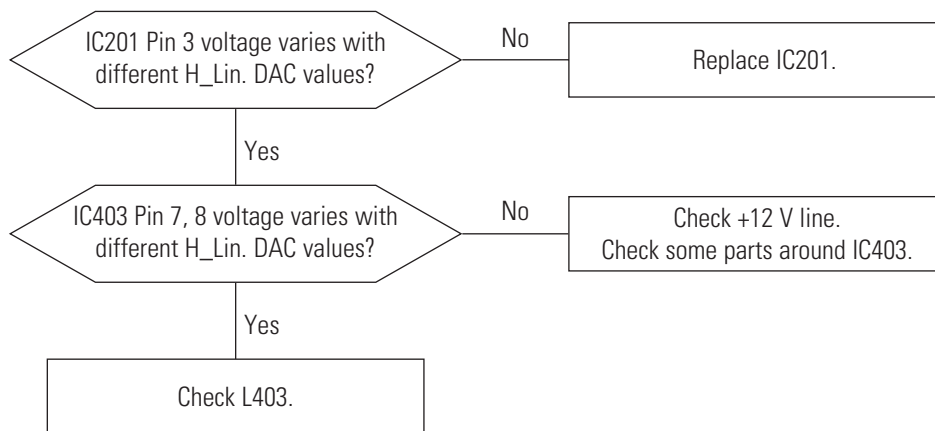
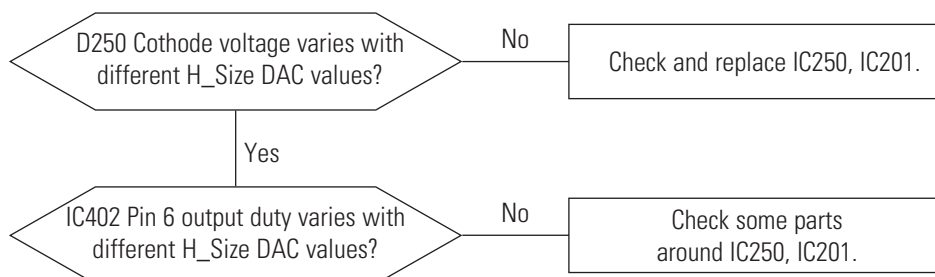
5-1-2 PFC Failure**WAVEFORMS****5-1-3 DPMS Failure**

5-1-4 H_Deflection Failure

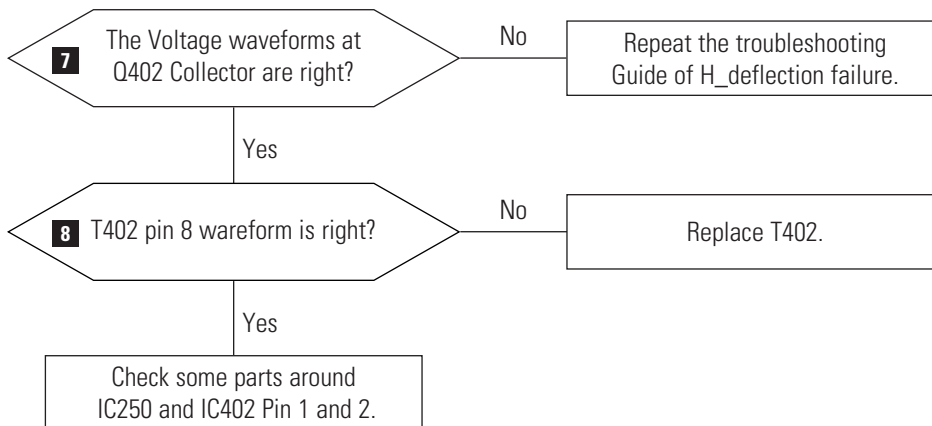


WAVEFORMS

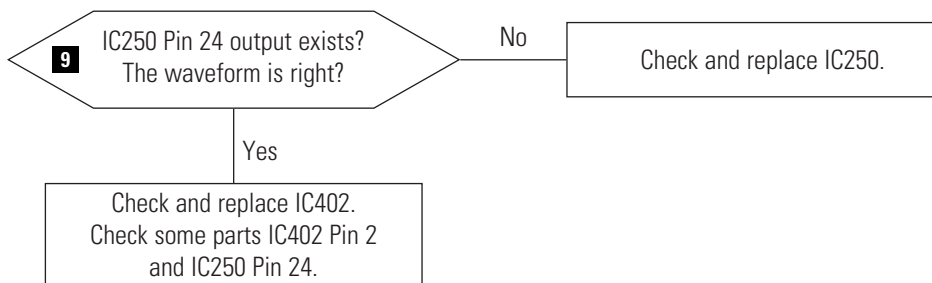


5-1-5 S Correction Failure**5-1-6 H_Lin. Failure****5-1-7 Invariable H_Size**

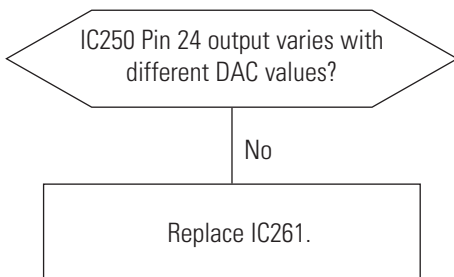
5-1-8 Abnormal H_Size



5-1-9 Side Pin or Trap Failure

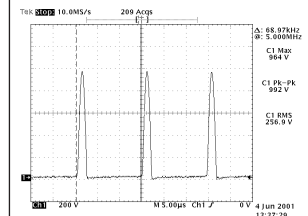


5-1-10 Para. or Pin Balance Failure

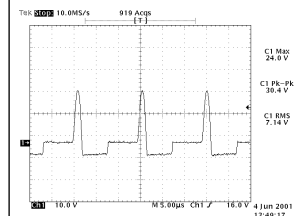


WAVEFORMS

7 Q402, Collector

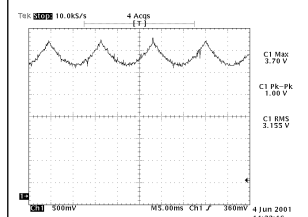


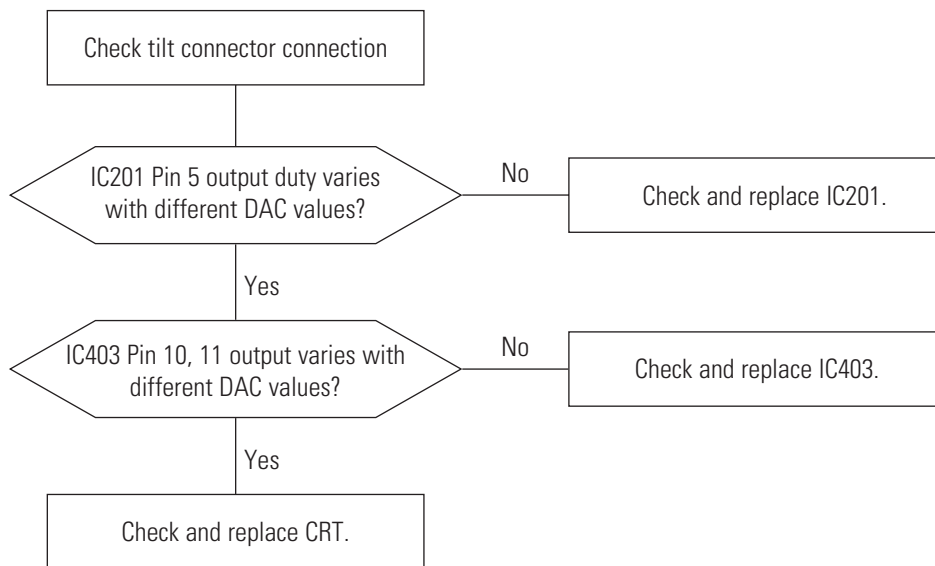
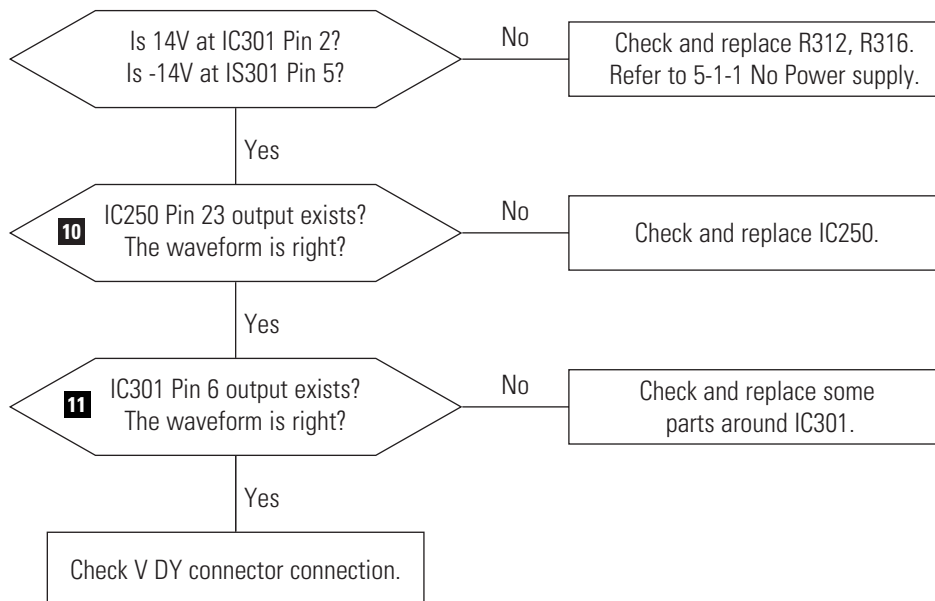
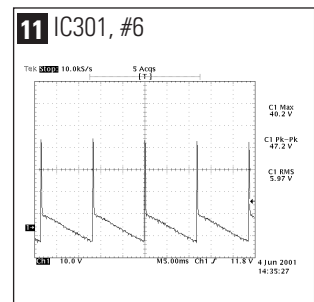
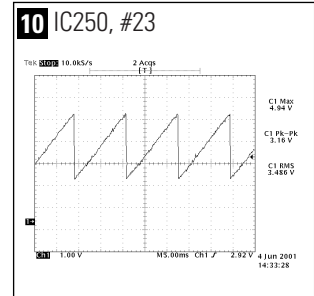
8 T402, #8



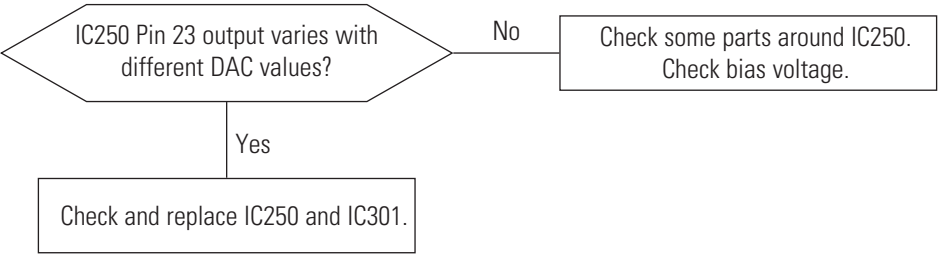
WAVEFORMS

9 IC250, #24

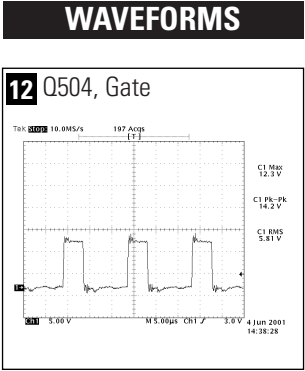
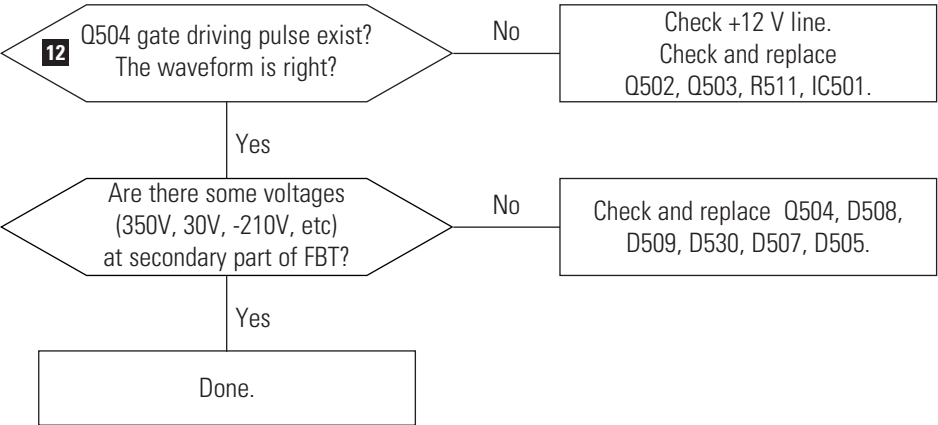


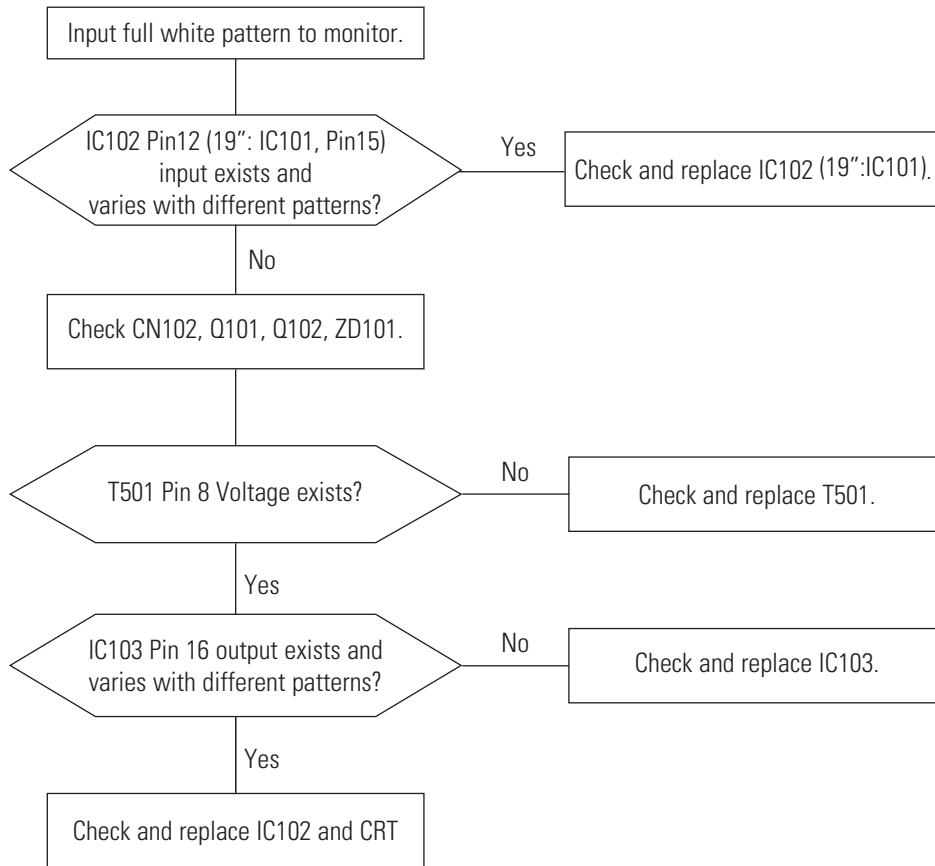
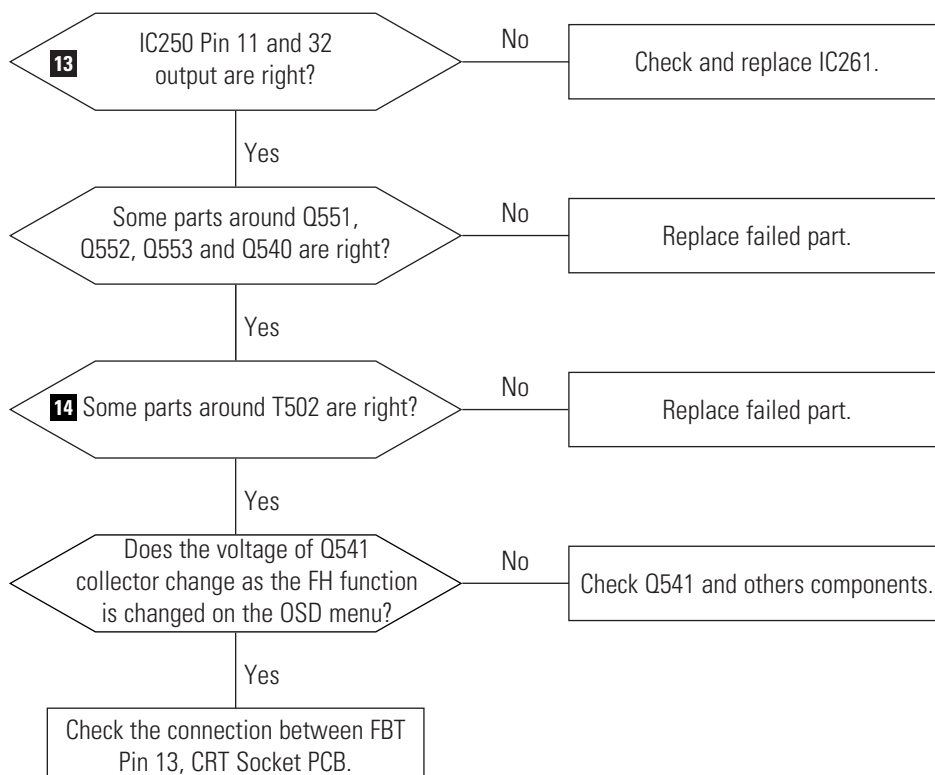
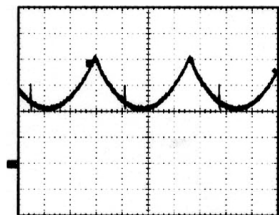
5-1-11 Tilt Failure**5-1-12 V Deflection Failure****WAVEFORMS**

5-1-13 V Size or Pos. Variation Failure

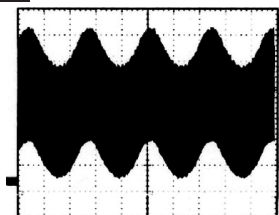


5-1-14 High Voltage Failure



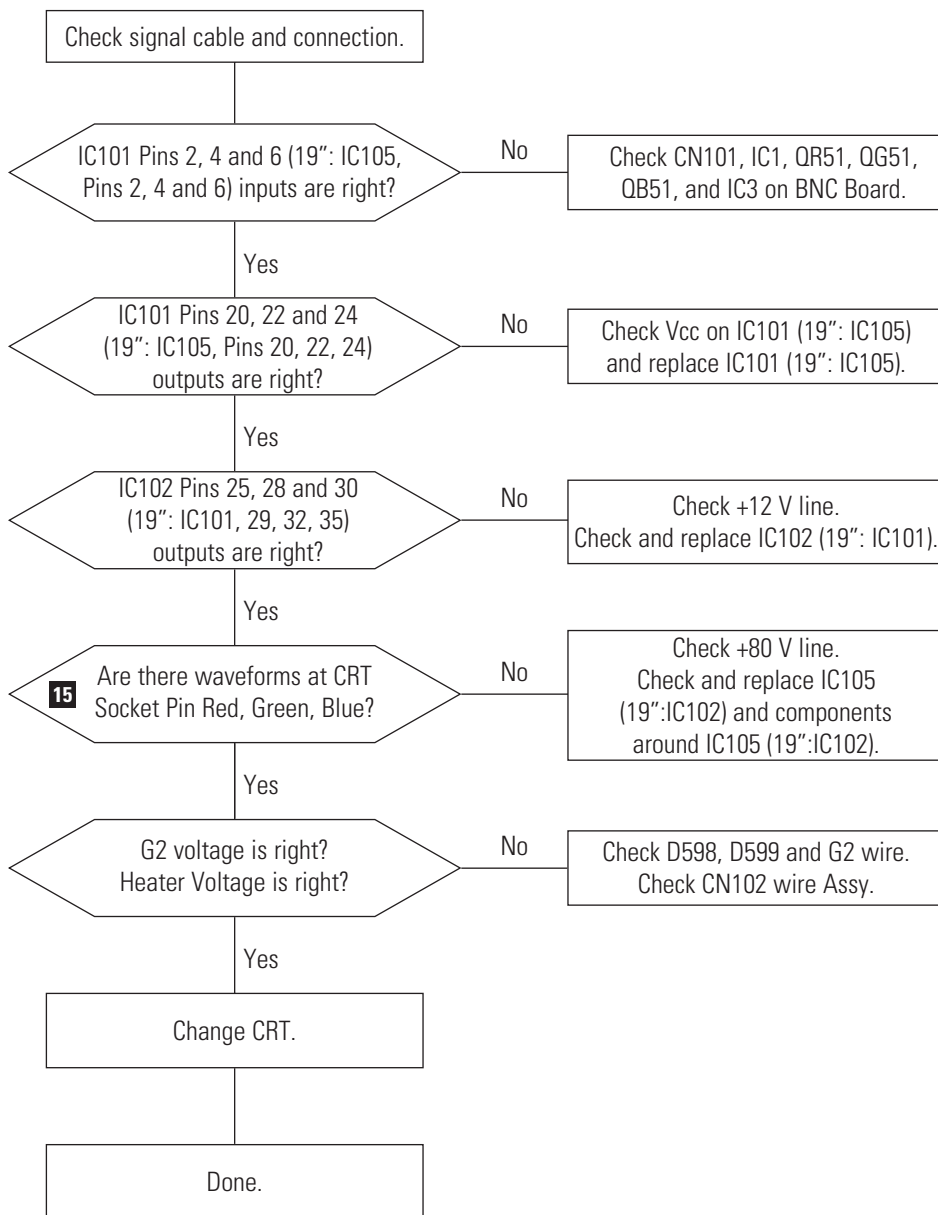
5-1-15 ABL Failure**5-1-16 Focus Failure****WAVEFORMS****13** 2.20 V (IC250, #11, 32)

CH1 P-P = 2.20 V CH1 RMS = 2.776 V

14 580 V (T501, #1)

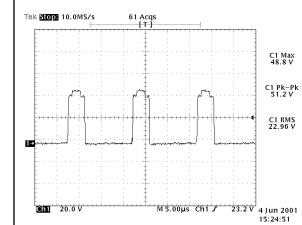
CH1 P-P = 580 V CH1 RMS = 278.2 V

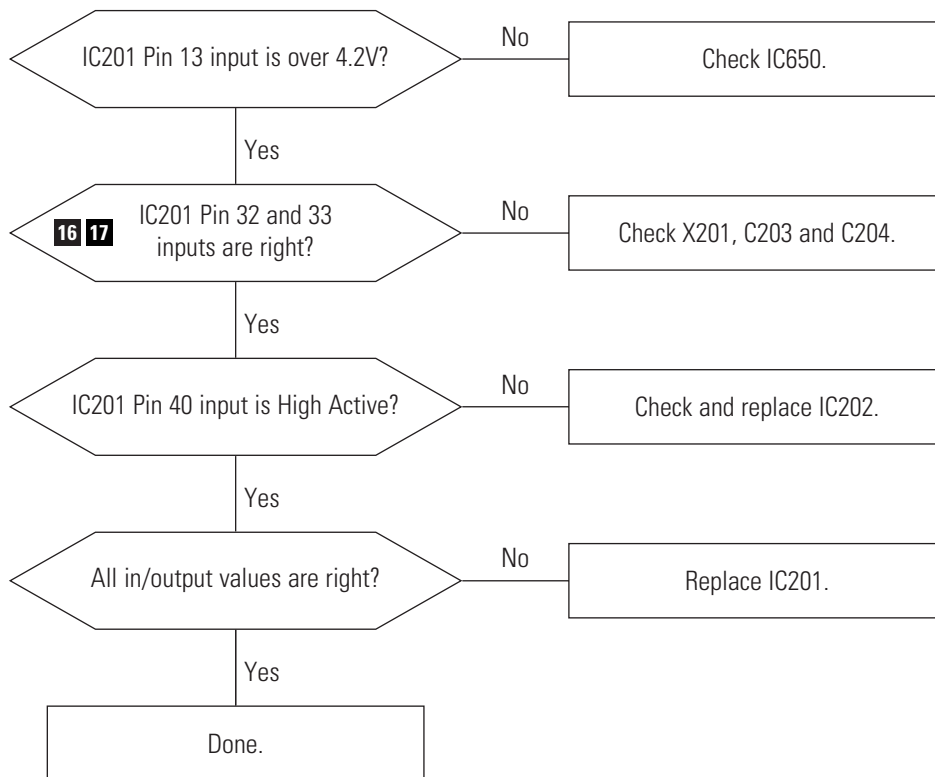
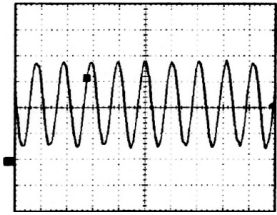
5-1-17 No Video



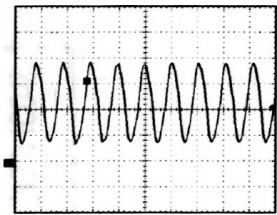
WAVEFORMS

15 CRT Socket, Red, Green, Blue



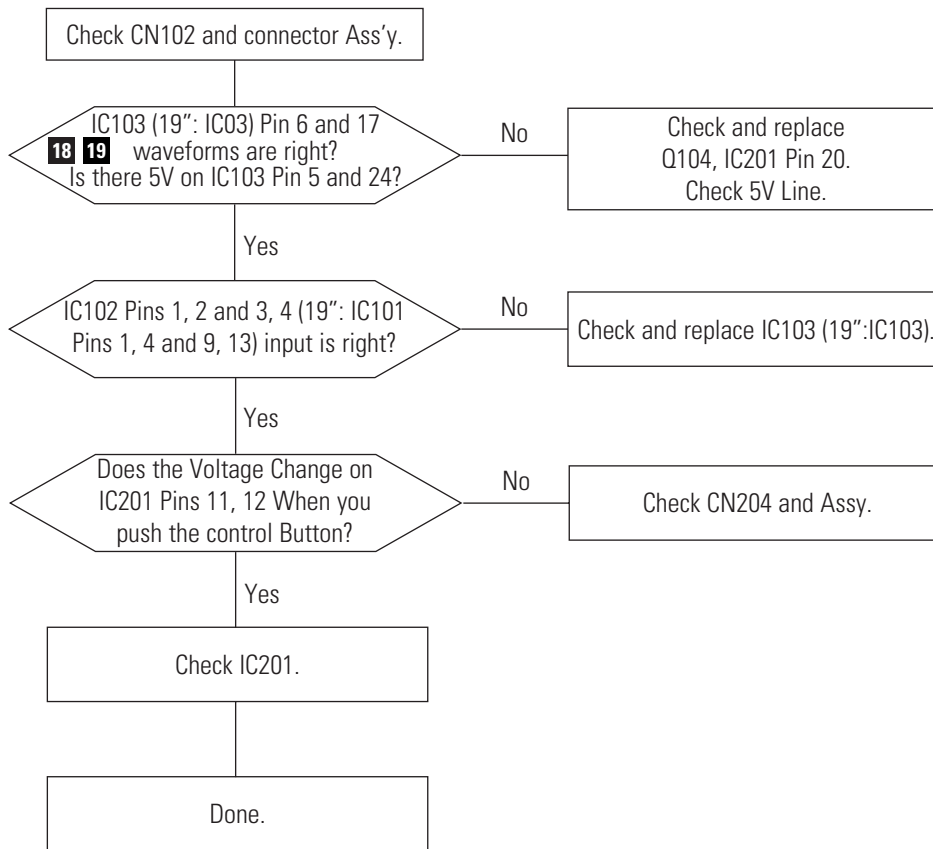
5-1-18 Micom Failure**WAVEFORMS****16** 3.42 V (IC201, #33)

CH1 P-P = 3.42 V CH1 RMS = 2.500V

17 3.16 V (IC201, #32)

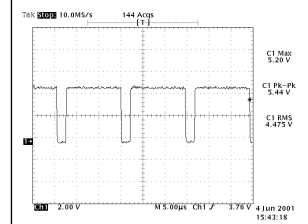
CH1 P-P = 3.16 V CH1 RMS = 2.560 V

5-1-19 OSD Failure

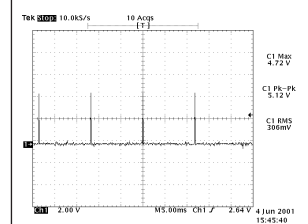


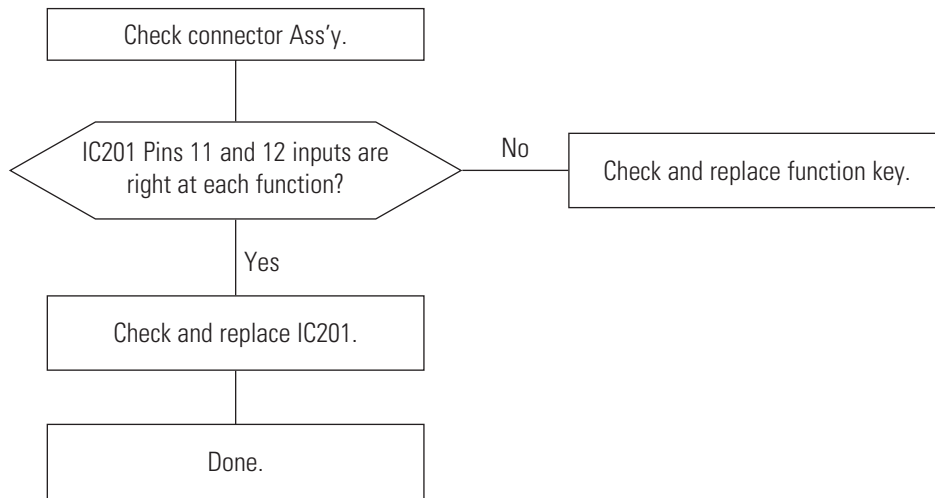
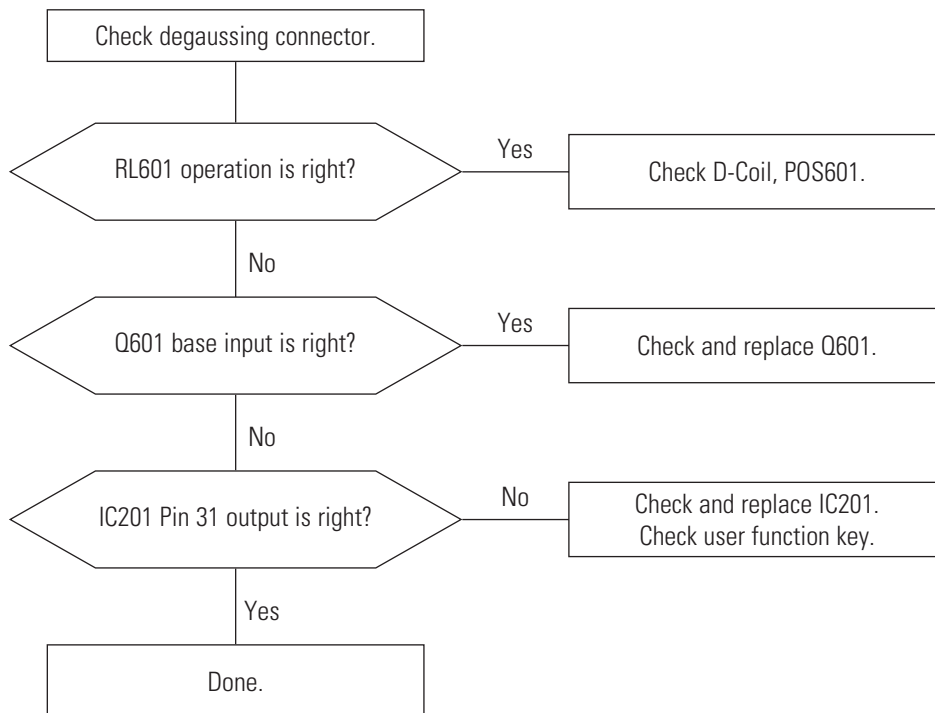
WAVEFORMS

18 IC103, #6, 17



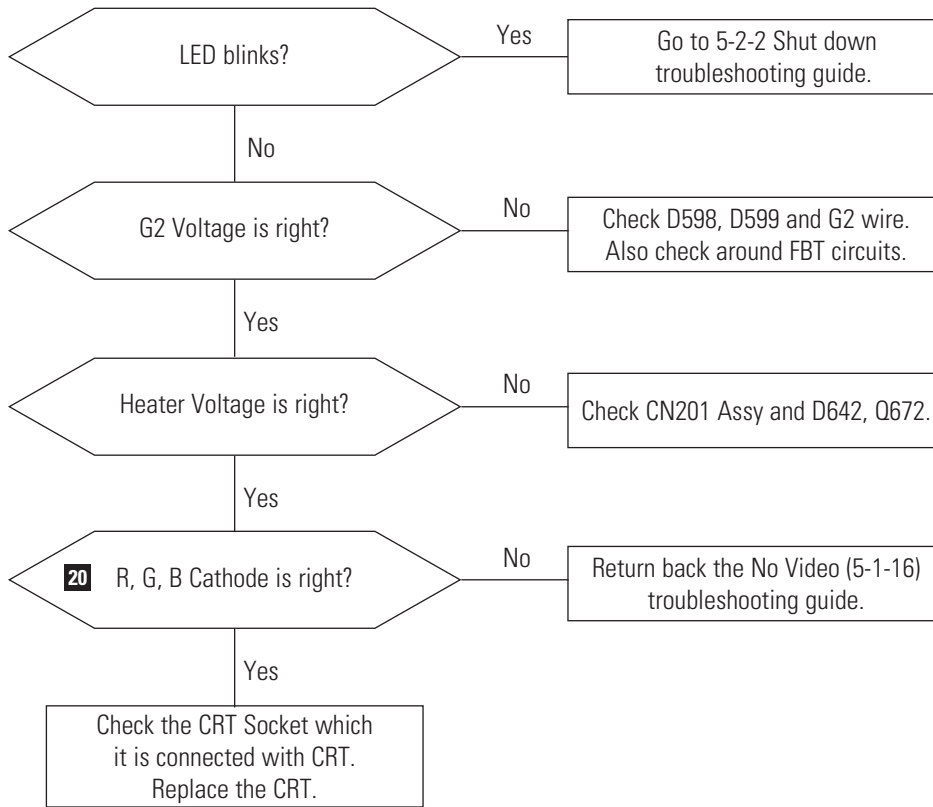
19 IC103, #5, 24



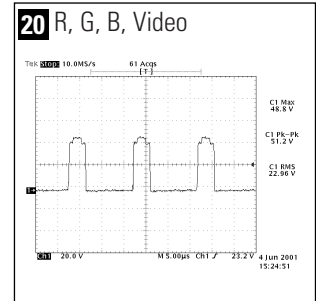
5-1-20 User Control Failure**5-1-21 Degaussing Failure**

5-2 General Troubleshooting

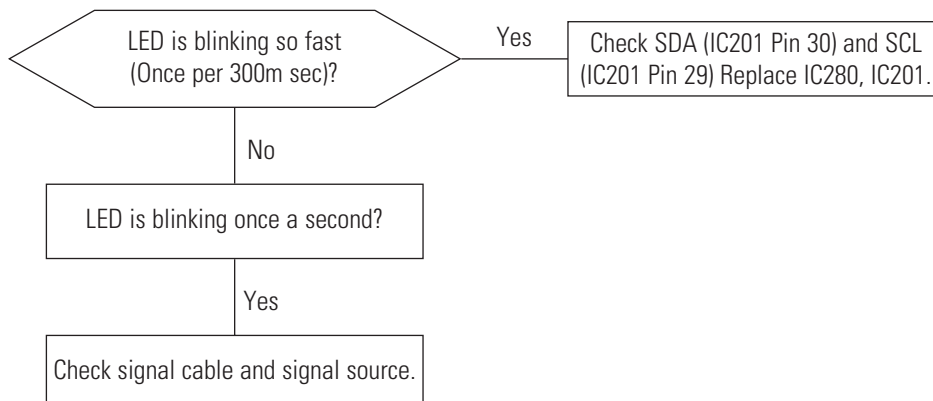
5-2-1 No Picture

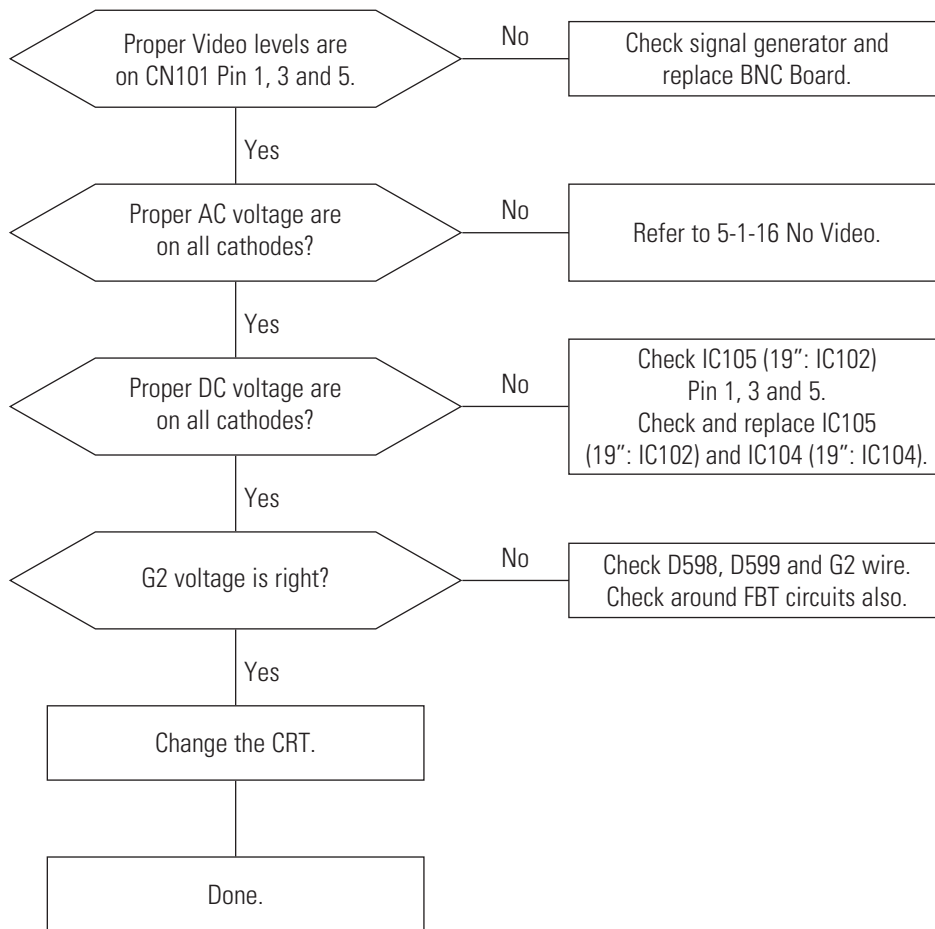


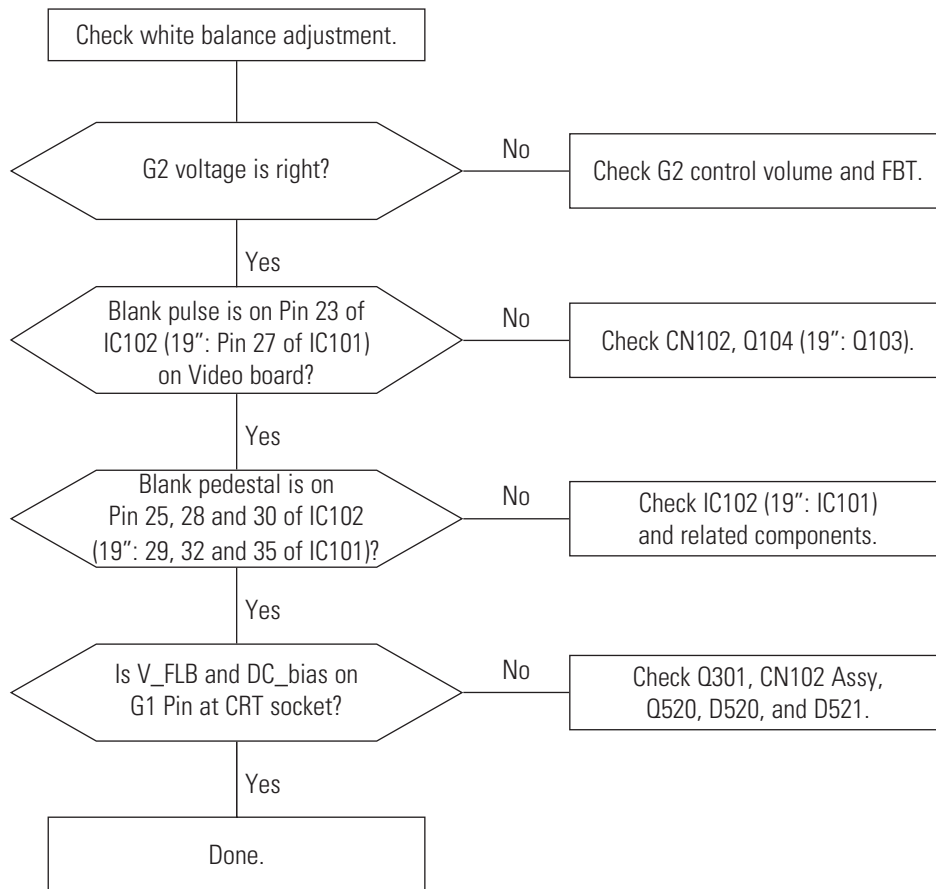
WAVEFORMS

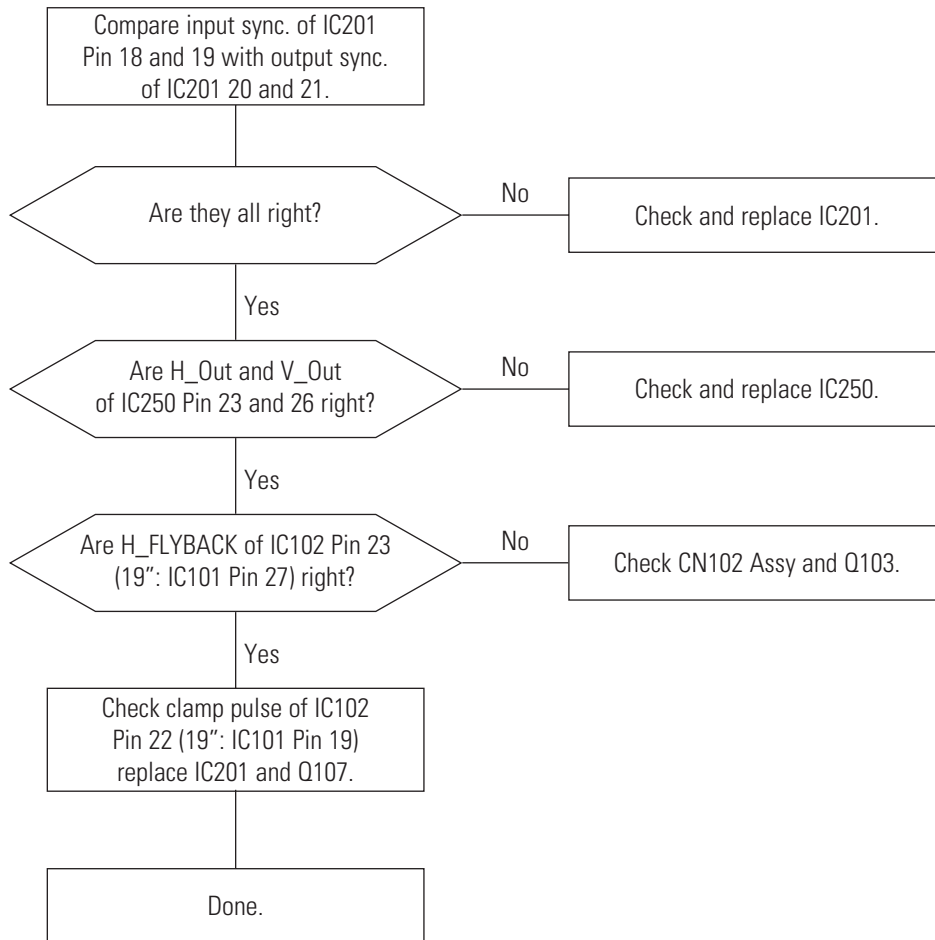


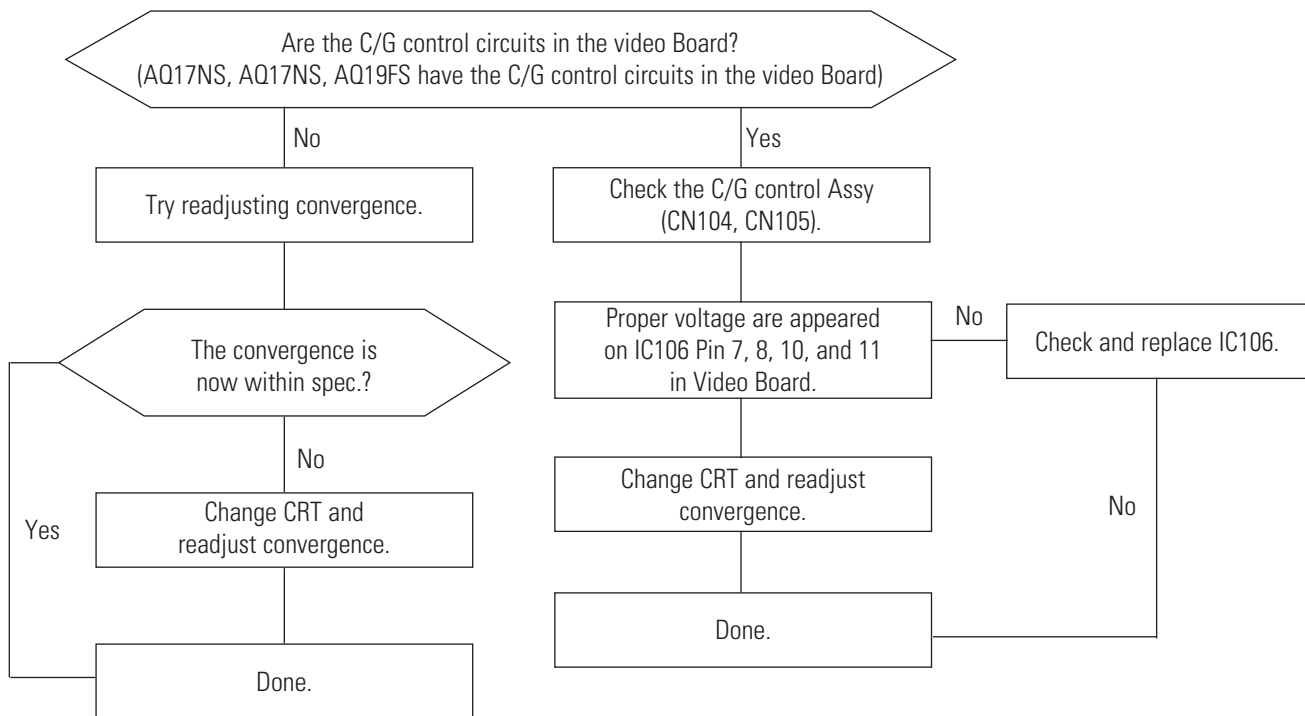
5-2-2 Shut Down

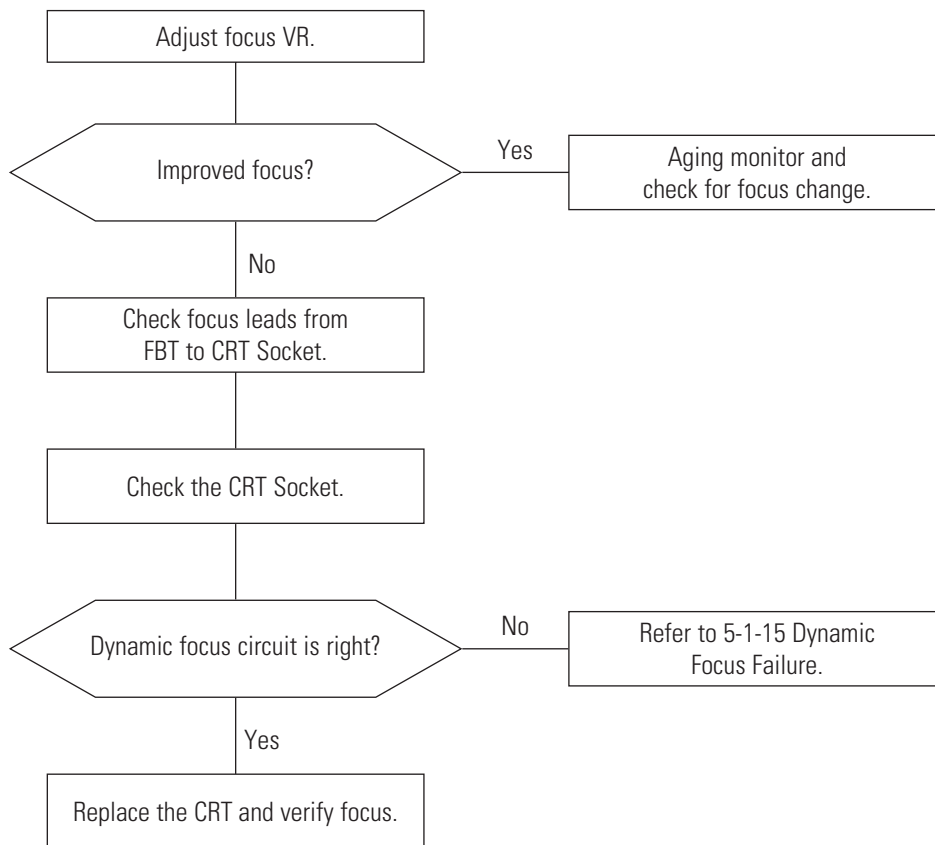
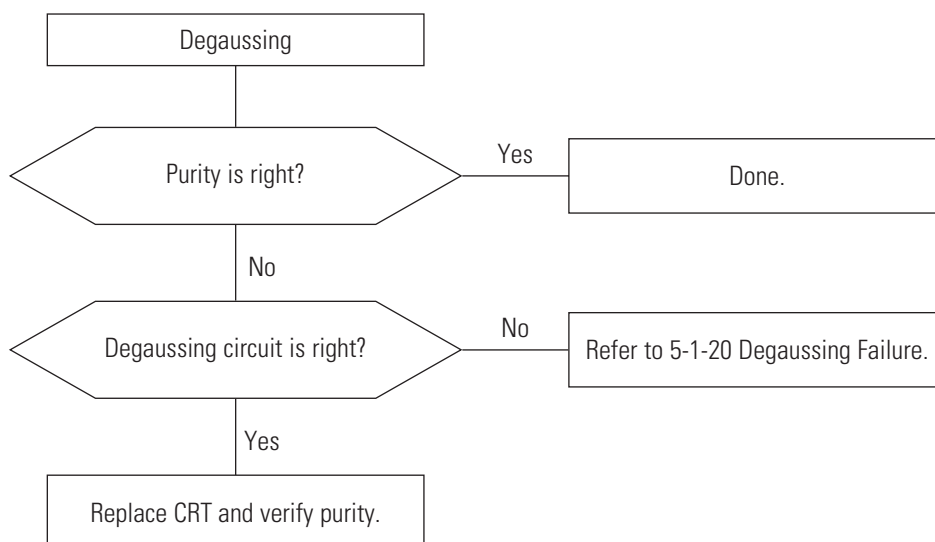


5-2-3 Missing Color

5-2-4 Visible Retrace

5-2-5 Unsynchronized Image

5-2-6 Misconvergence

5-2-7 Poor Focus**5-2-8 Purity Failure**

4-2 Display Control Adjustments

4-2-1 Centering

Centering means to position the center point of the display in the middle of the display area. Horizontal size and position and vertical size and position control the centering of the display.

Adjust the horizontal size and vertical size to their optimal settings: 312 mm (H) x 234 mm (V). 1280 x 1024 mode (91 kHz/85Hz)

Adjust the horizontal position and vertical position to ≤ 4.0 mm of the center point of the screen.

$$|A-B| \leq 4.0 \text{ mm.} \quad |C-D| \leq 4.0 \text{ mm.}$$

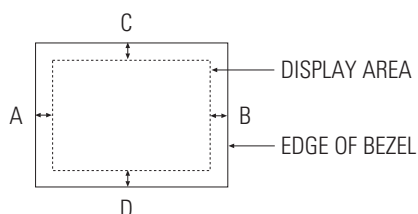


Figure 4-3. Centering

4-2-1 (a) HORIZONTAL SIZE ADJUSTMENT

CONDITIONS

Scanning frequency: 91 kHz / 85 Hz
Display image: Crosshatch pattern
Brightness: Cut-off
Contrast: Maximum

Click on the << or >> box next to **SIZE B+** to adjust the horizontal size of the display pattern to 312 mm (Tolerance: ± 3 mm) as the "H_SIZE" is "62" on the OSD.

4-2-1 (b) VERTICAL SIZE ADJUSTMENT

CONDITIONS

Scanning frequency: 91 kHz / 85 Hz
Display image: Crosshatch pattern
Brightness: Cut-off
Contrast: Maximum

Click on the << or >> box next to **V_SIZE** to adjust the vertical size of the display pattern to 234 mm. (Tolerance: ± 3 mm.)

4-2-1 (c) HORIZONTAL POSITION ADJUSTMENT

CONDITIONS

Scanning frequency: 91 kHz / 85 Hz
Display image: Crosshatch pattern
Brightness: Cut-off
Contrast: Maximum

Click on the << or >> box next to **H_POSI** to center the horizontal image on the raster.

4-2-1 (d) VERTICAL POSITION ADJUSTMENT

CONDITIONS

Scanning frequency: 91 kHz / 85 Hz
Display image: Crosshatch pattern
Brightness: Cut-off
Contrast: Maximum

Click on the << or >> box next to **V_POSI** to center the vertical image on the raster.

4-2-2 Linearity

Linearity affects the symmetry of images as they appear on the screen. Unless each row or column of blocks in a crosshatch pattern is of equal size, or within the tolerances shown in Table 4-1 an image appears distorted, elongated or squashed.

$$\text{Horizontal Linearity} = 2x \frac{X_{\text{max}} - X_{\text{min}}}{X_{\text{max}} + X_{\text{min}}} \times 100$$

$$\text{Vertical Linearity} = 2x \frac{Y_{\text{max}} - Y_{\text{min}}}{Y_{\text{max}} + Y_{\text{min}}} \times 100$$

Table 4-1

	Adjacent Linearity	Entire Linearity
Preset mode	$\leq 4\%$	$\leq 8\%$
Pre-load mode (48kHz-)	$\leq 5\%$	$\leq 10\%$
Pre-load mode (under 48kHz)	$\leq 5\%$	$\leq 14\%$

※ Preset Mode : 91 KHz / 85 Hz

Pre-load Mode : Refer to Timing Chart

4-2-2 (a) HORIZONTAL LINEARITY ADJUSTMENT

CONDITIONS

Scanning frequency: 91 kHz / 85 Hz
Display image: Crosshatch pattern
Brightness: Cut-off
Contrast: Maximum

To adjust the Horizontal Linearity, refer to Table 4-1 for the tolerance range.

Click on the << or >> box next to **H_LIN** to optimize the image.

Table 4-2
(Horizontal x Vertical Size Table)

	21"
Horizontal	393
Vertical	294.5

4-2-2 (b) VERTICAL LINEARITY ADJUSTMENT

CONDITIONS

Scanning frequency: 91 kHz / 85 Hz
 Display image: Crosshatch pattern
 Brightness: Cut-off
 Contrast: Maximum

To adjust the Vertical Linearity, refer to Table 4-1 for the tolerance range.

Use control bar after selecting “V_LINEARITY BAL” in left menu to optimize the image.

4-2-3 Trapezoid Adjustment

CONDITIONS

Scanning frequency: 91 kHz / 85 Hz
 Display image: Crosshatch pattern
 Brightness: Cut-off
 Contrast: Maximum

Use control bar after selecting “TRAPEZOID” in left menu to make the image area rectangular.

$$|A - B| < 5 \text{ mm}$$



Figure 4-4. Trapezoid

4-2-4 Pinbalance Adjustment

CONDITIONS

Scanning frequency: 91 kHz / 85 Hz
 Display image: Crosshatch pattern
 Brightness: Cut-off
 Contrast: Maximum

$$|D1|, |D2| \leq 2.0 \text{ mm}$$

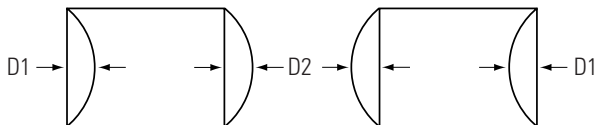


Figure 4-5. Pinbalance

Use control bar after selecting “PINBALANCE” in left menu to optimize the image.

4-2-5 Parallelogram Adjustment

CONDITIONS

Scanning Frequency: 91 kHz / 85 Hz
 Display image: Crosshatch pattern
 Brightness: Cut-off
 Contrast: Maximum

Use control bar after selecting “PARALLEL” in left menu to make the image area rectangular.

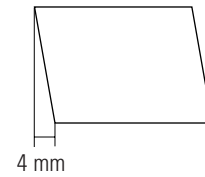


Figure 4-6. Parallelogram

4-2-6 Side Pincushion Adjustment

CONDITIONS

Scanning frequency: 91 kHz / 85 Hz
 Display image: Crosshatch pattern
 Brightness: Cut-off
 Contrast: Maximum

Use control bar after selecting “PINCUSHION” in left menu to straighten the sides of the image area.

$$|C1|, |C2| \leq 2.0 \text{ mm}, |D1|, |D2| \leq 2.0 \text{ mm}$$

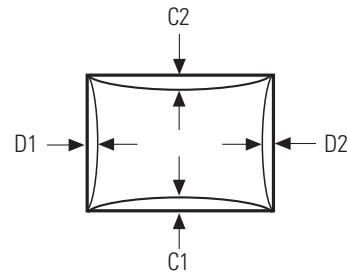


Figure 4-7. Pincushion

4-2-7 Degauss

No adjustments are available for the degaussing circuit. The degaussing circuit can effectively function only once per 30 minutes.

4-2-8 Save the Data

To save the adjustment data for factory frequencies, press **FACTORY SAVE**.

4-2-9 To Delete the User Mode Data

To delete the adjustment data from the user modes, click “@4: USER DELETE” in right menu.

4-3 Color Adjustments

4-3-1 Color Coordinates (Temperature)

Color temperature is a measurement of the radiant energy transmitted by a color. For computer monitors, the color temperature refers to the radiant energy transmitted by white. Color coordinates are the X and Y coordinates on the chromaticity diagram of wavelengths for the visible spectrum.

CONDITIONS

Measurement instrument: Color analyzer
 Scanning frequency: 91 kHz / 85 Hz
 Display Size : 312 (H) x 234 (V)
 Display image: White flat field at center of display area
 Brightness: Cut-off
 Contrast: Maximum

PROCEDURE

Use the directions in sections 4-3-2 through 4-3-4 to adjust the color coordinates for:

9300K to $x = 0.283 \pm 0.02$, $y = 0.298 \pm 0.02$

6500K to $x = 0.313 \pm 0.02$, $y = 0.329 \pm 0.02$

5000K to $x = 0.346 \pm 0.02$, $y = 0.359 \pm 0.02$

4-3-2 Color Adjustments for 9300K

4-3-2 (a) BACK RASTER COLOR ADJUSTMENT

CONDITIONS

Scanning frequency: 91 kHz / 85 Hz
 Display image: Back raster pattern
 Brightness: Cut-off
 Contrast: Maximum

1. Select **COLOR CHANNEL 1** to control the color for 9300K.
 2. Adjust the luminance of the back raster to between 0.5 to 0.7ft-L using the "**GREEN CUTOFF**" controls.
 3. Use control bar after selecting "**BLUE CUTOFF**" in left menu to set the "y" coordinate to 0.298 ± 0.015
 4. Use control bar after selecting "**RED CUTOFF**" in left menu to 0.283 ± 0.015
- * If color values would not be matched desirable values, repeat sequence 3 and 4 after readjusting "GREEN CUTOFF" control a little different.

4-3-2 (b) G-GAIN ADJUSTMENT

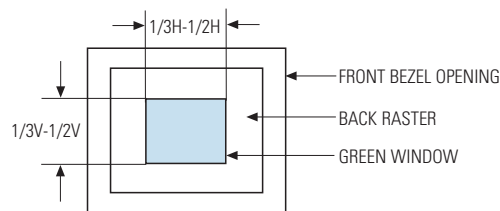


Figure 4-8. Green Box Pattern

CONDITIONS

Scanning frequency: 91 kHz / 85 Hz
 Display image: Green box pattern
 Brightness: Cut-off
 Contrast: Maximum

1. Click on the << or >> box next to **G_GAIN** to adjust the brightness of the Green Gain to 40 ± 1 ft-L.

4-3-2 (c) WHITE BALANCE ADJUSTMENT

CONDITIONS

Scanning frequency: 91 kHz / 85 Hz
 Display image: Full white pattern
 Brightness: Cut-off
 Contrast: Maximum

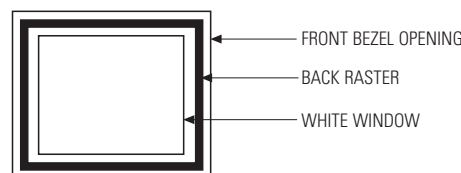


Figure 4-9. Full White Pattern

1. Click on the << or >> boxes next to **R_GAIN** and **B_GAIN** to make the video white. (For 9300K color adjustment: $x = 0.283 \pm 0.02$, $y = 0.298 \pm 0.02$.)
Note: Do not touch the **G_GAIN** controls.
2. Check the ABL. If it is not within the specifications (30 ± 1 ft-L), use the ABL controls to adjust it.
3. Select **COLOR FACTORY SAVE** to save the data.

Luminance Table (9300K) 4-3

	21"
Without ABL	32ft-L
Without ABL	28ft-L
Without ABL (High Light is Activated)	-

4-3-2 (d) WHITE BALANCE ADJUSTMENT VERIFICATION

CONDITIONS

Scanning frequency: 91 kHz / 85 Hz
 Display image: Back raster pattern
 X-Y Coordinates: $x = 0.283 \pm 0.02$,
 $y = 0.298 \pm 0.02$
 Raster Luminance 0.3 ~ 1ft-L
 ABL Luminance 30 ± 1 ft-L
 Brightness: Cut-off
 Contrast: Maximum

1. Check whether the color coordinates of the back raster satisfy the above spec.
If they do not, return to 4-3-2 (a) and readjust all settings.
2. Display a full white pattern.

Note: Do not touch the **G_GAIN** controls.

3. Adjust the Contrast Control on the monitor so that the luminance of the video is about 5 ft-L.
4. Check whether the white coordinates of the video meet the above coordinates spec.
5. Adjust the Contrast Control again so that the luminance of the video is about 20 ft-L.
6. Check whether the white coordinates of the video satisfies the above spec.
If they do not, return to 4-3-2 (a) and readjust all settings.

4-3-3 Color Adjustments for 6500K

4-3-3 (a) BACK RASTER COLOR ADJUSTMENT

CONDITIONS

Scanning frequency: 91 kHz / 85 Hz
 Display image: Back raster pattern
 Brightness: Cut-off
 Contrast: Maximum

1. Select **COLOR CHANNEL 2** to control the color for 6500K.
2. Adjust the luminance of the back raster to between 0.5 to 0.7 ft-L using the **G_CUT** controls.
3. Click on the << or >> boxes next to **R_CUT** and **B_CUT** to adjust the R-Bias to $x = 0.313 \pm 0.02$ and the B-Bias to $y = 0.329 \pm 0.02$.

4-3-3 (b) G-GAIN ADJUSTMENT

This procedure is the same as that for 9300K, refer to the procedure on page 4-5.

You must adjust the Brightness of Green gain to 39 ± 1 ft-L.

4-3-3 (c) WHITE BALANCE ADJUSTMENT

CONDITIONS

Scanning frequency: 91 kHz / 85 Hz
 Display image: Full white pattern
 Brightness: Cut-off
 Contrast: Maximum

1. Click on the << or >> boxes next to **R_GAIN** and **B_GAIN** to make the video white.
(For 6500K color adjustment:
 $x = 0.313 \pm 0.02$, $y = 0.329 \pm 0.02$.)
2. Refer to the procedure for 9300K, section 4-3-2 (c) steps 2 and 3.

4-3-3 (d) WHITE BALANCE ADJUSTMENT VERIFICATION

Refer to the procedure for 9300K, section 4-3-2 (d).

Luminance Table (6500K) 4-4

	21"
Without ABL	32ft-L
With ABL	28ft-L

4-3-4 Color Adjustments for 5000K

4-3-4 (a) BACK RASTER COLOR ADJUSTMENT

CONDITIONS

Scanning frequency: 91 kHz / 85 Hz
 Display image: Back raster pattern
 Brightness: Cut-off
 Contrast: Maximum

1. Select **COLOR CHANNEL 3** to control the color for 5000K.
2. Adjust the luminance of the back raster to between 0.5 to 0.7 ft-L using the **G_CUT** controls.
3. Click on the << or >> boxes next to **R_CUT** and **B_CUT** to adjust the R-Bias to $x = 0.346 \pm 0.02$ and the B-Bias to $y = 0.359 \pm 0.02$.

4-3-4 (b) G-GAIN ADJUSTMENT

This procedure is the same as that for 9300K, refer to the procedure on page 4-5.

Adjust the brightness of the **G_GAIN** less 2 ft-L than brightness of procedure for 9300K.

4-3-4 (c) WHITE BALANCE ADJUSTMENT

CONDITIONS

Scanning frequency: 91 kHz / 85 Hz
 Display image: Full white pattern
 Brightness: Cut-off
 Contrast: Maximum

- Click on the << or >> boxes next to **R_GAIN** and **B_GAIN** to make the video white.
 (For 5000K color adjustment:
 $x = 0.346 \pm 0.02$, $y = 0.359 \pm 0.02$.)
- Refer to the procedure for 9300K, section 4-3-2 (c) steps 2 and 3.

	21"
Without ABL	32ft-L
With ABL	28ft-L

Luminance Table (6000K) 4-5

4-3-4 (d) WHITE BALANCE ADJUSTMENT VERIFICATION

Refer to the procedure for 9300K, section 4-3-2 (d).

4-3-5 Luminance Uniformity Check

Luminance is considered uniform only if the ratio of lowest to highest brightness areas on the screen is not less than 7.5:10.

CONDITIONS

Scanning frequency: 91 kHz / 85 Hz
 (1024 x 768)
 Display image: White flat field
 Display size: 312 (H) x 234 (V)
 Brightness: Cut off point
 Contrast: Maximum

PROCEDURE

Measure luminance at nine points on the display screen (see figure below).

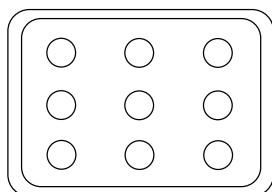


Figure 4-10 Luminance Uniformity Check Locations

4-3-6 Focus Adjustment

CONDITIONS

Scanning frequency: 91 kHz / 85 Hz
 Display image: "H" character pattern
 Brightness: Cut off point
 Contrast: Maximum

PROCEDURE

- Adjust the Focus VR on the FBT to display the sharpest image possible.
- Use Locktite to seal the Focus VR in position.

4-3-7 Color Purity Adjustment

Color purity is the absence of undesired color. Conspicuous mislanding (unexpected color in a uniform field) within the display area shall not be visible at a distance of 50 cm from the CRT surface.

CONDITIONS

Orientation: Monitor facing east
 Scanning frequency: 68 kHz/85 Hz
 Display image: White flat field
 Luminance: Cut off point at the center of the display area

Note: Color purity adjustments should only be attempted by qualified personnel.

PROCEDURE

For trained and experienced service technicians only.

Use the following procedure to correct minor color purity problems:

- Make sure the display is not affected by external magnetic fields.
- Very carefully break the glue seal between the 2-pole purity convergence magnets (PCM), the band and the spacer.
- Make sure the spacing between the PCM assembly and the CRT stem is $29 \text{ mm} \pm 1 \text{ mm}$.
- Display a green pattern over the entire display area.
- Adjust the purity magnet rings on the PCM assembly to display a pure green pattern.
 (Optimum setting: $x = 0.295 \pm 0.015$,
 $y = 0.594 \pm 0.015$)
- Repeat steps 4 and 5 using a red pattern and then again, using a blue pattern.

Table 4-6. Color Purity Tolerances

Red:	$x = 0.620 \pm 0.015$	$y = 0.334 \pm 0.015$
Green:	$x = 0.289 \pm 0.015$	$y = 0.595 \pm 0.015$
Blue:	$x = 0.153 \pm 0.015$	$y = 0.072 \pm 0.015$

(For 9300K color adjustment: $x = 0.283 \pm 0.02$, $y = 0.298 \pm 0.02$)

- When you have the PCMs properly adjusted, carefully glue them together to prevent their movement during shipping.

3-1-7 Removing the Video PCB Assembly Rear Shield and Video PCB

1. Remove the 3 screws on the PCB Assembly.
2. Remove the Video PCB Assembly Rear Shield. (5 point)
3. Lift out the Video PCB and place it on a flat, level surface that is protected from static electricity.

3-1-8 Removing the Main PCB Assembly

1. Remove both side screws (4 screws) on the lower edge of the CRT Bracket.
2. Remove Chassis Ground Wire on the both side.
3. Disconnect CN201, CN409, CN601, H_DY, CN604 and Anode Cap on the Main PCB Assembly.

3-1-9 Removing the Main PCB

1. Remove 6 screws on the main PCB.
2. Pull the Main PCB towards you and carefully lift out the main PCB and place it on a flat, level surface that is protected from static electricity.

3-1-10 Removing the Bracket

1. Remove the 10 screws on the Front Cabinet.

3-1-11 Removing the Degaussing Coil

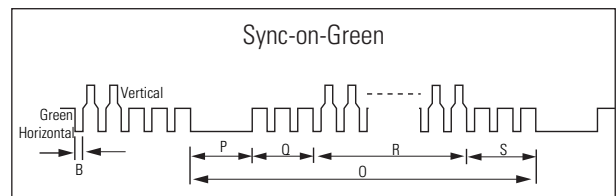
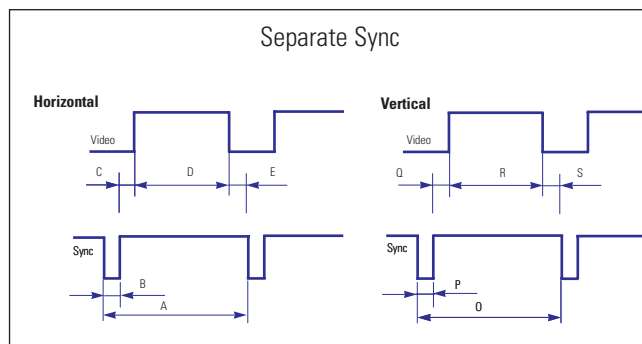
1. Using pinch-nosed pliers or long-nosed pliers, carefully push the 4 plastic ties on the Bracket.
2. Lift the Degaussing Coil Assembly from the Bracket.

3-2 Reassembly

Reassembly procedures are in the reverse order of Disassembly procedures.

Table 2-1. Timing Chart

Mode Timing	IBM		VESA					
	VGA2/70Hz 720 x 400	VGA3/60Hz 640 x 480	640/85 Hz 640 x 480	800/85 Hz 800 x 600	1024/85 Hz 1024 x 768	1280/75 Hz 1280 x 1024	1280/85 Hz 1280 x 1024	1600/85 Hz 1600 x 1200
fH (kHz)	31.469	31.469	43.269	53.674	68.677	79.976	91.146	106.250
A μ sec	31.778	31.778	23.111	18.631	14.561	12.504	10.971	9.412
B μ sec	3.813	3.813	1.556	1.138	1.016	1.067	0.016	0.837
C μ sec	1.907	1.907	3.810	2.702	2.201	1.837	1.422	1.325
D μ sec	25.422	25.422	5.222	14.222	10.836	9.481	8.127	6.972
E μ sec	0.636	0.636	17.778	0.569	0.508	0.119	0.406	0.279
fV (Hz)	70.087	59.940	85.008	85.061	84.997	75.025	85.024	85.000
O msec	14.268	16.683	13.333	11.756	11.765	13.329	11.761	11.765
P msec	0.064	0.064	0.080	0.056	0.044	0.038	0.033	0.028
Q msec	1.080	1.048	0.427	0.503	0.524	0.475	0.483	0.433
R msec	12.711	15.253	12.800	11.179	11.183	12.804	11.235	11.294
S msec	0.413	0.318	0.027	0.019	0.015	0.013	0.011	0.009
Clock Freq. (MHz)	28.322	25.175	36.000	56.250	94.500	135.000	157.500	229.500
Polarity H.Sync	Negative	Negative	Negative	Positive	Positive	Positive	Positive	Positive
V.Sync	Positive	Negative	Negative	Positive	Positive	Positive	Positive	Positive
Remark	Separate	Separate	Separate	Separate	Separate	Separate	Separate	Separate



A : Line time total	B : Horizontal sync width	O : Frame time total	P : Vertical sync width
C : Back porch	D : Active time	Q : Back porch	R : Active time
E : Front porch		S : Front porch	

1-2 Servicing Precautions

WARNING1: First read the “Safety Precautions” section of this manual. If unforeseen circumstances create conflict between the servicing precautions and safety precautions, always follow the safety precautions.


WARNING2: A high voltage VR replaced in the wrong direction may cause excessive X-ray emissions.

WARNING3: An electrolytic capacitor installed with the wrong polarity might explode.

1. Servicing precautions are printed on the cabinet, and should be followed closely.
2. Always unplug the unit's AC power cord from the AC power source before attempting to: (a) remove or reinstall any component or assembly, (b) disconnect PCB plugs or connectors, (c) connect all test components in parallel with an electrolytic capacitor.
3. Some components are raised above the printed circuit board for safety. An insulation tube or tape is sometimes used. The internal wiring is sometimes clamped to prevent contact with thermally hot components. Reinstall all such elements to their original position.
4. After servicing, always check that the screws, components and wiring have been correctly reinstalled. Make sure that the area around the serviced part has not been damaged.
5. Check the insulation between the blades of the AC plug and accessible conductive parts (examples: metal panels, input terminals and earphone jacks).
6. Insulation Checking Procedure: Disconnect the power cord from the AC source and turn the power switch ON. Connect an insulation resistance meter (500 V) to the blades of the AC plug.
The insulation resistance between each blade of the AC plug and accessible conductive parts (see above) should be greater than 1 megohm.
7. Never defeat any of the +B voltage interlocks. Do not apply AC power to the unit (or any of its assemblies) unless all solid-state heat sinks are correctly installed.
8. Always connect a test instrument's ground lead to the instrument chassis ground before connecting the positive lead; always remove the instrument's ground lead last.

1-3 Electrostatically Sensitive Devices (ESD) Precautions

Some semiconductor (solid state) devices can be easily damaged by static electricity. Such components are commonly called Electrostatically Sensitive Devices (ESD). Examples of typical ESD devices are integrated circuits and some field-effect transistors. The following techniques will reduce the incidence of component damage caused by static electricity.

1. Immediately before handling any semiconductor components or assemblies, drain the electrostatic charge from your body by touching a known earth ground. Alternatively, wear a discharging wrist-strap device. To avoid a shock hazard, be sure to remove the wrist strap before applying power to the monitor.
2. After removing an ESD-equipped assembly, place it on a conductive surface such as aluminum foil to prevent accumulation of an electrostatic charge.
3. Do not use freon-propelled chemicals. These can generate electrical charges sufficient to damage ESDs.
4. Use only a grounded-tip soldering iron to solder or desolder ESDs.
5. Use only an anti-static solder removal device. Some solder removal devices not classified as “anti-static” can generate electrical charges sufficient to damage ESDs.
6. Do not remove a replacement ESD from its protective package until you are ready to install it. Most replacement ESDs are packaged with leads that are electrically shorted together by conductive foam, aluminum foil or other conductive materials.
7. Immediately before removing the protective material from the leads of a replacement ESD, touch the protective material to the chassis or circuit assembly into which the device will be installed.
Caution: Be sure no power is applied to the chassis or circuit and observe all other safety precautions.
8. Minimize body motions when handling unpackaged replacement ESDs. Motions such as brushing clothes together, or lifting your foot from a carpeted floor can generate enough static electricity to damage an ESD.
9.  Indicates ESDs on the Schematic Diagram in this manual.



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